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BIRD NOTES AFIELD

A Series of Essays on the Birds of California

by

CHARLES A. KEELER

D. P. ELDER & MORGAN SHEPARD
SAN FRANCISCO
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DEDICATED TO

ALEXANDER STERLING BUNNELL

WITH THE HOPE THAT HIS INTEREST IN THE BIRDS
MAY LEAD TO AN ENLARGED SYMPATHY
WITH ALL THAT IS BEAUTIFUL
IN NATURE.

PREFACE.

My little book on the birds of California has been written, not for scientists but for those who wish to have an introduction to our familiar birds in their native haunts. If it persuades some few of its readers to go out of doors and look at nature with a more friendly and inquiring eye, its purpose will have been accomplished. That a certain skeleton of scientific classification should underlie the work has seemed necessary in order to convey to the uninitiated some inkling of the systematic grouping of the various species, but I have endeavored to subordinate the science to life wherever possible.

Several of the essays have been previously published in *Zoe*, *The San*

Francisco Call, *The Land of Sunshine*, and *A Berkeley Year*. To the publishers and editors of these I am indebted for allowing their republication. I am also especially obliged to Mr. Leverett M. Loomis for many courtesies during the preparation of my work. The superb study collection of California birds in the Museum of the California Academy of Sciences has formed the basis for working up the descriptive list of the appendix.

C. A. K.

CONTENTS.

	PAGE
A First Glance at the Birds	3
Patrolling the Beach	53
A Trip to the Farallones	63
A Day on the Bay Shore	89
A Glimpse of the Birds of Berkeley	107
January in Berkeley	121
February in Berkeley	134
March in the Pine Woods	145
April in Berkeley	155
Berkeley in May	165
Summer Birds of the Redwoods	180
Nesting Time	194
In a Mission Patio	217
Appendix	235

BIRD NOTES AFIELD.

A FIRST GLANCE AT THE BIRDS.

E WHO know California think it the most glorious of lands. The winds of freedom blow across its lofty mountains and expansive plains. There is something untamed and elemental about its wildernesses, and a tender charm about its pastoral valleys. The everlasting seas thunder upon its bold, granite headlands, the pines lift their heads almost into the snow of its mountain tops, and in its great interior valleys grow the dark, venerable live-oaks; the sycamores sprawl their hoary trunks aloft, and willows and alders wave their delicate foliage beside the streams. Then there are the far

wastes of chaparral,—great expanses of mountain and mesa covered only with a scanty growth of stiff, harsh shrubs, but always beautiful with views of far-away mountains, blue and purple in the haze. It is the land of the orange and the olive, yet its mountain peaks rest in eternal snow.

In this land I invite you to wander with me, seeking out the birds. If we but look for them we shall find them everywhere. If we but listen for them, the desert as well as the garden shall resound with their songs. It is a great sweep of country from Humboldt to San Diego County, and a large number of birds are found within these limits, so many in fact, that the novice would be quite bewildered should he undertake to inspect them all. However, a beginning must be made, and our feathered neighbors must become more popularly known. Let us content ourselves for the present with a few glimpses of the birds in their native haunts, and

trust that enough interest may be aroused to stimulate an enthusiasm which may grow into a genuine acquaintance.

There is something about the bird which appeals to everyone—its lightness and freedom from constraint, its power and its grace. It charms us with its song, and its plumage is a delight to the eye. There is an almost human atmosphere about the home life of the nest. What can surpass the devotion of the mother bird for her little ones? But with all our instinctive love for these precious waifs of the woodland and sea, we take little pains either to know them or to protect them. The confines of California harbor several hundred species, of which some half dozen are popularly and inaccurately known, while in every town within our limits are found the two most persistent and destructive enemies which our bird neighbors know—the small boy with his gun and egg collection, and the

woman with her bonnet adorned with a mutilated carcass. Accordingly I will invite you to go afield with me to-day and, if possible, get some general notion of our rich treasure which is being so lavishly ruined—to the end that you may perhaps learn in time to know and love the birds, that you may find in their companionship a new sympathy with the universal life which is throbbing about us, and that you may be moved to lift your voice and hand to arrest the slaughter of your new-found friends.

The long coast-line of California is the home of innumerable species of sea birds, some of which wander over the boundless ocean from the Farallones to the Ladrones, while others migrate along its shore, coming from Alaska on the north and from Patagonia on the south. The diversified topography of the land and the varied character of the climate and plant life insures a home for a great variety of land birds as well. A

continent might separate the birds of the rainy coast district of Humboldt County from the species inhabiting the arid region of the Colorado Desert, so different are they in form, plumage and habits.

I am often asked whether the birds of California differ much from those of New England, and the comparison is a most interesting one to make. In order to understand the distinctions, however, it will be necessary to explain the difference between a species and a variety or geographical race. Two related birds are said to be distinct species when they possess any constant marks of difference, however slight these may appear to the untrained eye. When connecting links are found between two allied forms they are said to intergrade and one is considered a mere variety of the other. For example, the western robin differs from its eastern prototype by a few very trivial characters, which completely blend in the region intermediate

between the typical home of each species. Our robin is, therefore, merely a variety of the American robin and can only be distinguished from that bird by the critical examination of an expert. The western bluebird, on the contrary, although similar to the eastern bluebird in general color, size and habits, has a patch of blue upon the breast where its eastern congener is colored a uniform earthy red, and, since this difference is constant, the two birds are considered distinct species. Many of our swallows are identical on both sides of the Rocky Mountains, although one species, and this the most beautiful of them all, is confined to the Pacific Coast. There is but one humming-bird found in the Eastern States, a species which is absent here but replaced by six other representatives of the group. Our meadow-lark, although commonly held to be but a variety of the eastern bird, is a shade lighter in color and has a very distinct song. The far-famed scarlet tanager

of the eastern woods does not cross the Rocky Mountains, but the western tanager has a dash of scarlet on his yellow head and breast. Some species of birds, which are distributed over the entire northern portion of our country, have remained so constant in coloration throughout their range that the most exacting scrutiny of experts has failed to show any tangible variation. Of these may be mentioned the mocking-bird, the ruby-crowned kinglet and the belted kingfisher. By far the largest proportion of our Pacific Coast birds, however, differ, at least to a slight degree, from their eastern relatives, this divergence ranging from a mere shade of marking or of size to an entirely different coloration, as in some of the examples cited above. There are also a number of birds here which are unrelated to any living species, and occupy genera of their own. Such are the white-headed woodpecker, the wren-tit, and the phainopepla.

There is a superstition, unfortunately all too prevalent, that our birds do not sing. The truth of the matter is that our ears do not hear, or rather, that our attention is directed to other things. We talk of importing singing birds from far-off lands at the same time that we calmly permit many of our own beautiful songsters to be exterminated. It is well for people to learn to appreciate what they have before desiring to add to their possessions. Does the robin sing in the elms of New England? In the pines and redwoods of California he sings the same dear old song. Does the meadow-lark make glad the plowed fields of Illinois with his whistle? Here he sings a fuller and richer tune. To be sure we do not know the ecstatic song of the bobolink, but the linnet sings here a strain that is quite as vivacious and with a sweeter melody. Bullock's oriole sounds his ringing notes as bravely with us as the more famed but no more lovely Balti-

more oriol does about New York, and so on throughout the list.

To know the birds we must see them in their native haunts—on the ocean, about the shores, in the sage-brush and the pine woods. The sea birds include the lowest types. They are the least lovable, least human of our birds, but to the naturalist of peculiar interest on account of their low organization. They are unemotional, comparatively unintelligent, and not infrequently grotesque in form, but they are wonderfully well adapted to the life they lead. While crossing the ferry some quiet day in winter you may notice, swimming about near the shore, a bird which appears to possess little besides a long, slender, erect neck, a small head, and a long, sharp, spear-like beak. Suddenly, without the slightest warning, the bird vanishes beneath the tide. You may watch the spot in vain for its reappearance, for away off in another direction it is calmly swimming away. It is the western grebe,

one of the lowest of our sea birds, which, with two smaller cousins, spends the winter along our shores, and, with the possible exception of the penguins of the Antarctic, is one of the most accomplished divers in the world. Hunters are in the habit of saying that it dives upon seeing the flash of a gun and thus escapes the shot. It is distinguished among other things by the singular arrangement of its feet for swimming. Instead of a web-foot, each toe has a loose flap or lobe, with a slight webbing at the base of the toes, by means of which the bird gets an ample purchase upon the water in swimming.

The nearest relatives of the grebes are the loons, two species of which inhabit the waters of our bay during the winter months. Their necks are larger and the whole build of the bird is more massive, but they are wonderful swimmers and divers. Their legs are placed so far to the rear that loons are helpless creatures upon the land, barely able to

crawl along with their bodies flat upon the ground.

In this same group of diving birds are several species which nest along our coast, upon bleak, inhospitable bluffs, and upon such naked rocks as the Farallones. What home could be imagined more dreary for a baby bird, yet here where the breakers are pounding and the keen winds ceaselessly blowing, in some cranny of the rocks, the tufted puffin lays her solitary egg and rears her lonely little chick. Upon the ledges overhanging the sea, the California murres congregate by thousands and deposit their eggs wherever a spot sufficiently level is found. These eggs are familiar to most of you, no doubt, as the Farallone eggs, formerly sold in the markets of San Francisco.

Before leaving the diving birds it may be well to emphasize their division into three families—the grebes, the loons, and the auks, murres and puffins. Among the most interesting species, not already

mentioned, are the rhinoceros auklet, with a curious horn upon its bill, the little gray Cassin's auklet and the pigeon guillemot, a resident form that breeds on the Farallones.

The gulls are members of the next great order—the long-winged swimmers. They are all birds combining power of flight with skill as swimmers, and are accordingly provided for both forms of locomotion, with long, powerful wings and webbed feet. Furthermore it may be noted that the hind toe is either absent or very small. The jaegers are the huntsmen of the sea, lithe and swift of flight, with dark-brown backs and either light or dark-colored breasts. Their home is in the far north and they are only occasional winter visitants in this region. But the gulls are always with us, and during the winter months are not only very abundant but also strikingly tame. Indeed, they attract such general attention and interest, particularly from those who travel upon

the ferries, that they merit special consideration. Notice the poise of head, the grace of form, the flawless contour of one as it sails close beside the boat, without a motion of its wings, the head turning now and then and the sharp eyes ever watchful for food. I find that many people imagine there are but two species frequenting the bay—one a dark-brownish variety, and the other, white beneath and bluish gray above. In reality there are eight or nine species commonly found about the bay, the young or immature of which are all dark in color, and the adults of all but one largely white and bluish gray.

In attempting to distinguish the various species of gulls the novice must constantly bear in mind the fact that the difference between the immature and adult plumage is greater in many cases than the marks which distinguish different species. There is one species, however, so entirely distinct from the others that it can be known at a glance

—Heermann's gull, a form confined to the Pacific Coast. It is of medium size, with a dark-slaty or plumbeous back, a dusky-gray breast and black wings and tail, the latter narrowly tipped with white. The head is white and the bill vermilion in the breeding bird, but in the immature plumage the white is replaced by mottling, and the bright hue of the beak by brownish black.

Having familiarized ourselves with this very dark and wholly unique species, we may roughly classify the remaining ones into three groups according to their size. In all of them the adult bird is mostly white, with a mantle (as the plumage of the back is termed) of pearly bluish or slaty gray, the white of the head becoming mottled in winter time. The immature birds are dusky grayish or brownish, more or less mottled above and below. It is necessary to understand that the distinctions between the species are very subtle in character, and that the best we can hope for with

the live bird flying about us, is to approximate its name. With the young, even this is impossible in many instances, as the characteristics are even less defined.

Of gulls of the largest size, three species are common about the bay—the glaucous-winged, the American herring and the western gull. The first of these may be known by the long flight or wing-quills, which are bluish gray in color, save for the white spots at their tips. In the other two species the wing-quills are black or blackish brown, usually marked with large spots of white. The western gull has a much darker, slaty-colored mantle, and a stouter bill than the American herring gull. This latter species may consequently be known as one of the largest gulls, with a comparatively slender bill, black primaries and a pale blue mantle. Even the immature bird of this species may be distinguished by its paler shade of brownish gray and its more slender bill.

The gulls belonging to the medium-sized class are the most difficult to differentiate. They are the California, the mew, the short-billed and the ring-billed gulls. Of these the California gull is probably the most abundant species. It is of about the same size as the ring-billed, but is a shade darker in color. The ring-billed gull may generally be known by the ring of black encircling its beak, and the mew and short-billed may be told from the rest by their smaller size and much shorter beaks. There is, however, no characteristic by which the short-billed may be distinguished from the mew gull as they are seen in flight.

The third group of gulls includes but one species, the beautiful Bonaparte's gull, a dainty, graceful little creature, with typical pearl-blue mantle, and, unlike the other gulls of this region, adorned with a hood of dark-slaty color.

The terns, which also frequent our coast, are similar to the gulls in form and

color but even more slender than Bonaparte's gull. The swallows among sea birds, with long, forked tails, sharp wings, and acute bills, they may always be distinguished by their habit of flying with the head pointed abruptly downward, and by their practice of plunging from the air down into the water—a habit never shared by the gulls.

The confines of San Francisco Bay are too limited to hold such ocean rangers as the albatrosses and petrels, which form the next great division, known as the tube-nosed swimmers. Three groups are included in this order—the albatrosses (the mightiest birds of flight), the fulmars and shearwaters, which are about the size of an average gull, and the little petrels, mites scarcely larger than a swallow. All these birds are masters of the sea. The fiercest gale does not daunt them, and they scorn any resting place save the waves. During calm weather they are at a disadvantage, since their wings are used chiefly as sails with

which they climb upon the wind, and I have seen albatrosses swimming about on the glassy surface of the ocean seemingly unable to arise.

The fulmars, colored like gulls, might well be confounded with them were it not for the curious indentations of the beak and the two nostril tubes surmounting it. One species, which breeds in great numbers along Alaskan cliffs, spends the winter upon our coast.

There is something pathetic about so slight a thing as a petrel in mid ocean. I know of nothing which so impresses one with the loneliness and desolation of the sea as to find one of these frail, graceful little creatures hovering about a ship at nightfall, just as a storm is threatening. But sympathy is wasted upon a being who revels in tempests, and who delights in courting death by hovering upon the very edge of the wildest breakers. They are known to the sailors as Mother Carey's chickens and are considered birds of evil omen.

Two species are found on our coast, both breeding upon the Farallone islands,—Leach's and the ashy petrel.

The next order of water birds embraces all those which have not only the three front toes connected by webs, but also the hind toe joined to the others in like manner. They are called the totipalmates and include the cormorants and pelicans, representatives of both of which are common along our shores. A distinguishing mark is the naked skin-pocket, directly under the bill, known as the gular pouch, an appendage which for a long time was supposed to be used for carrying live fish to the young, but this theory has been pronounced untrue, as the young are now known to be fed with partially macerated food disgorged by the parents.

Many of you have, no doubt, noticed a large-bodied, long-necked sort of bird, dark brownish-black in color, flying over the surface of the bay with rather laborious flapping of wings, or have seen

several of them standing erect upon some bare rock, their long necks reaching way into the air. They are cormorants—probably Brandt's—familiarly known as "shags." Besides being excellent swimmers and divers they are expert fishermen. They breed along our coast, three species being represented upon the Farallones, and unlike most sea birds they make large nests of sticks and sea-weed. Their young look like hideous little imps of black india rubber, with enormous gaping mouths which seem almost capable of swallowing their devoted parents.

Two species of pelicans make their home in our state—the white and the California brown. The former, a beautiful bird in its snowy plumage, is most common about the interior lakes, while the California brown is found only on the coast. It is an interesting sight to observe a flock of white pelicans fishing by forming in line and wading in the shallow water toward the shore, gathering in their plunder as they go.

The California brown pelicans plunge from a considerable height while on the wing, a most interesting performance, which may be frequently observed along the shores of San Francisco Bay.

The next order of water birds includes the ducks, geese and swans, birds which are amply represented in our midst, as any sportsman can testify. Although there are some twenty species of ducks which frequent our marsh-lands and bay shores, representing a number of genera, only one of them, the cinnamon teal, is peculiar to this coast, all the others being distributed over the entire North American continent, or at least over its northern portions. The mergansers are farthest removed from our typical duck, having a much narrower and sharper beak. They are fish eaters, and consequently are not palatable, most people preferring their fish diet at first hand. The wood-duck is the most beautiful of the group in coloration, with its shimmering dress of

purple, green, chestnut and white. Its breeding habits are of unusual interest, for whereas most ducks make their nests on the ground in marsh-land, the wood-duck repairs to a hollow tree beside some stream to rear her brood.

I need only mention, in passing, some of the more common species known to every housewife and sportsman—the red-head and the canvas-back, the blue- and green-winged teal, the shoveller, the pintail and the butterball. Then there are the goldeneyes, the scaup ducks and the scoters, these last being sea ducks, which are seldom eaten. They feed largely on mussels, swallowing them whole, still I have never heard of one dying of indigestion.

During the migrating season flocks of geese, flying in characteristic wedge-shape lines, are familiar sights, and the far-away, incessant calls of the birds may be heard late into the night. Several species are represented here, and also

the whistling swans, which, however, are less abundant than the geese.

In traveling about the shores of San Francisco Bay, or indeed in any marshy places in the state, you may often see a great, long, slender bird, perched high up on stilts—a solitary blue-gray fisherman, wading about in the pools and intently watching for game. When aroused he flaps off with a lumbering flight, his long feet stretched out behind him in lieu of a tail. The bird, often incorrectly called a crane, is the great blue heron.

Although the herons are waders and spend much of their lives in shallow water, they perch and nest in the trees. The little green heron is a very common species all over the country, and among our other representatives are the black-crowned night heron and the snowy egret. You all know the egrets, for their plumes are in great demand for ladies' bonnets. The plumes of any heron may be used—a

handful plucked from the back—a mangled corpse cast aside in the marsh and a nestful of babies crying for the fond mother who will never return to them. It takes but a day of anguish and they are dead; and this is the price paid for the little plumes that wave airily in the bonnets of our maidens and matrons. Methinks no woman ought to be light-hearted adorned with such mementoes of tragedy, yet the story has been often told and the decorations are still worn.

Let us hurry by the other marsh and shore birds, interesting though they be—the rails (of which some five species are found here), the coots or mud-hens, as they are called by hunters, the wonderful little phalaropes, which look so much like sandpipers and yet swim instead of wade, the avocets and the stilts, the dainty sandpipers, which flash their snowy breasts in the sun as flocks wheel past us flying to their feeding ground on the mud-flats, the curlews, the plovers and killdeers of our upland fields

and shores, the surf birds, the turnstones and oyster-catchers of our sea beaches, —let us hurry by all these interesting groups in order to have a peep at the land birds, the inhabitants of our fields and groves.

The land birds of California may be broadly classified into the following orders:—the scratching or gallinaceous birds (including all the grouse, quail and fowls); the pigeons; the birds of prey; the cuckoos (including kingfishers as well); the woodpeckers; the order including the goatsuckers, swifts and humming-birds; and finally the perching birds, in which group fall all of our familiar little songsters of woodland and garden.

Of the scratching birds, the partridges or quail (as they are more popularly termed) are the most familiar and abundant. Two species, the valley and mountain-quail, are distributed over the greater part of the state and may be known by their head plumes, that of

the valley-quail being an erect tuft of feathers, which is thrown forward over the head when the bird is excited, that of the mountain-quail being a long, slender plume, extending backward. The latter bird may also be known at a glance by its larger size and its chestnut flanks. Both birds are very showily ornamented, and among the most characteristic species of the west. Everyone knows the loud clear, *cu*, *cu'*, *cu* of the valley-quail, but the high, nervous whistle of the mountain form is less familiar, since these birds frequent the more remote mountainous portion of the state. The valley-quail becomes very tame when not molested, and is a fascinating creature to observe, so vigorous in its step and flight, so alert and proud.

Then there is the sooty grouse in our pine woods which, in early spring, booms mysteriously amid the tall trees; and, on the deserts, the sage-hen.

The pigeon family is represented within our confines by three species—

the band-tailed pigeon, the mourning-dove and the little ground-dove, which occurs only in the southern portions of the state. The mourning-dove is the commonest representative of the order, and its sweet, mournful note is heard during the breeding season the country over. The band-tailed pigeon is larger, and generally restricted to the mountainous regions of California, except during the winter months, when occasional flocks range through the valleys.

The birds of prey may be subdivided into three main groups—the vultures, the hawks and the owls. Two of the three North American vultures are found in our state, one of these being the California condor. This unique bird, which is now nearly extinct, is of immense size, about equaling the famous condor of the Andes. It is a great black creature with a naked head and neck, ugly and ungainly when alighted, but peerless when calmly swinging through the air on outstretched pinions.

The turkey-buzzard is similar to the condor in plumage, but smaller, and like it in ugliness in repose, and grace in flight. It is very abundant in most parts of the state and valuable as a carrion feeder.

Of our many hawks, the two most numerous are the western red-tail and the sparrow-hawk. The former is of large size, abundant everywhere and easily distinguishable in mature plumage by the bright rufous color of the tail. The sparrow-hawk is the smallest and one of the most abundant of North American falcons. It is showily colored, with a rufous back and tail, black barred in the female, a bluish-gray cap and a series of conspicuous black streaks on the head. The breast is buff or rufous, more or less spotted with black, while the throat and under tail-coverts are white. The bird is most useful to the farmer as its food is chiefly insectivorous. When grasshoppers are plentiful, it is interesting to see the sparrow-hawk poise in

the air on fluttering wing and suddenly swoop down to the ground to capture one of them.

In spite of the common impression that hawks are a pest which should be exterminated, the fact is quite the reverse. Nearly all of our hawks feed chiefly upon mice and other small mammals, and upon the larger insects. The sharp-shinned hawk, a little fellow scarcely larger than the sparrow-hawk, a swift, impetuous and bold creature, is an exception to this rule, and prefers the excitement of a chase after some luckless bird.

Among our other hawks may be mentioned the beautiful white-tailed kite, with its white head and breast and its bluish gray back, which contrasts with the black shoulder-patch and spot under the wing; the marsh-hawk, generally found about the bay shores or other marshy places, and easily recognized by the conspicuous white patch on the upper tail-coverts; the western goshawk, which is

perhaps the most destructive to chickens, a large, powerful bird, bluish gray on the back and with fine, wavy bars on the breast; and the red-breasted hawk, an ally of the red-tail. Both the golden and bald eagles are inhabitants of the wilder portions of the state.

It does not require an expert ornithologist to tell an owl, but to distinguish the different genera and species is not at all times so easy. The American barn-owl, which is very like its European kinsman, so famed in song and story as the inhabitant of ruined places, is a common resident in the valleys of California. Its note is a wild screech, generally uttered as the bird flies past on noiseless wings, a moving shadow against the sky. Although the barn-owls prefer ruins for a home their æsthetic sense must be satisfied, for the most part, in this new country, with deserted barns. In the southern California missions, however, they find abiding places very much to their liking.

The screech-owl is to me the most attractive member of the order, though why such a sweet-voiced bird should have so forbidding a name I have never been able to discover. It has a variety of notes, all of them agreeable, but its most characteristic call is a low, trembling, flute-like whistle. It is a small bird, and in California always of a mottled-gray color. It nests in a hole in a live-oak, and is very abundant in the oak regions of the state.

The great horned owl is a giant in comparison. He is the typical hooting owl, with his *tu hoo'*, *tu hoo'*, sounding in solemn cadence through the night. The woodland is dear to him and he may be found in the depths of the pine forest.

I will not tarry over the long and short-eared owls, the former an inhabitant of the underbrush and the latter of the marshes, for both species are generally distributed over the North American continent. There are three other species, however, which are so

peculiarly distinctive of the west as to demand our attention. The first of these is the burrowing owl, concerning which such extraordinary tales have been related. We have been gravely told that it dwells in peace in the same burrow with the rattlesnake and the prairie-dog, like the happy family in the menagerie. As a matter of fact, it occupies the deserted tunnels of the prairie-dog in the great plains, and of the ground-squirrel in California. It is distinguished from all other owls by its greatly elongated and almost featherless feet, enabling it to work in the earth with greater ease. We see it abroad by day much more than other owls, and it may frequently be observed in bare, open fields or on hill slopes, sitting upon the mound at the opening to its burrow, or upon an adjacent fence post. It is a comical sight to see the mother with her fuzzy little ones sunning themselves near their hole, and, at the approach of danger, scampering precipitately into their retreat.

The pygmy and elf owls are two very remarkable western forms, being but little larger than a chunky sparrow. They are without the ear tufts, characteristic of so many owls, and fly about by day quite as much as at night. The little California pygmy owl is common in the more mountainous parts of the state. Its back is reddish brown, dotted with fine white spots, and the breast is white, banded and streaked with the color of the back.

We come next to the so-called Picarian birds, which have been a stumbling block to ornithologists for many years. The most common type of land bird, of course, has three toes in front and one behind. I may also add that the so-called leg is only the foot greatly elongated, and that the knee is generally concealed among the feathers of the body. Now in the groups which next claim our attention the arrangement of the toes is sometimes modified, two being directed forward and the

other one or two backward. This division embraces such dissimilar birds as the cuckoos, the kingfishers, the woodpeckers, the goatsuckers, swifts and humming-birds.

Of all western birds, the road-runner has perhaps claimed the largest share of popular attention. Its long, slender body, its loose, mottled plumage, burnished with beautiful iridescent green and brown, its terrestrial habits, its superficial resemblance to a fowl, and, more than all else, its wonderful fleetness of foot, have combined to spread its fame. Who would believe it to be a cuckoo?—yet such in fact its anatomy proclaims it. An inhabitant of the sage-brush, the road-runner delights in the desert land which most creatures shun. It is a typical westerner—long, lank, and fleet of foot, able to cope with the rattlesnake and capable of running from the fleetest foe.

The belted kingfisher, which helps to enliven every rural stream in North America with his cheery call, is not

wanting in California. With his big, crested head, his strong, sharp, spear beak, his weak little feet, he is a figure never to be forgotten. His dark, glossy, blue back and his white breast, with a ragged, blue vest, make up a characteristic figure; and his loud ringing rattle, uttered as he flies, is a fitting accompaniment to the music of a mountain stream.

The woodpeckers are especially well represented throughout California, and are particularly abundant in number and variety in the mountains. There is Harris's woodpecker, a fair-sized bird, with black and white streaks down the back and a dash of scarlet on the head, and Gairdner's woodpecker, which is like a miniature edition of the other. Related to these two is Nuttall's woodpecker, in which the black and white markings are disposed as bars instead of streaks. The white-headed woodpecker is found only in the Sierra Nevada Mountains and the ranges to the north

of us. It is black, with the entire head white, and a patch of the same on the wings. The male bird has a scarlet band on the back of the neck. There are also the Arctic three-toed woodpecker, found in our high Sierras, a black-backed, white-breasted bird, the male with a crown-patch of yellow; the red-breasted sapsucker, a showy fellow when in full plumage; and the great pileated woodpecker, with one exception the largest of his tribe in this country, and a denizen of the most secluded woodlands.

The California woodpecker has gained world-wide celebrity from its habit of riddling dead trees with holes and filling them with acorns. It is a gaily adorned species, with a glossy, blue back, white wing and rump patches, a scarlet cap and a white forehead and throat-patch. The under parts are white, tinged with sulphur yellow, except the breast, which is black, and the sides, which are more or less streaked with black. The merry, though unmusical, *ka rak' ka*, *ka rak' ka* of this

bird is a familiar note in the wooded portions of the state. Lewis's woodpecker is another interesting species, confined to the mountains except during the winter months, when it is driven southward through the valleys.

The red-shafted flicker is to me one of the most entertaining of the woodpeckers, partly because he has so many characteristics that unite him with the perching birds, and partly because he is everywhere so abundant and connected with so many delightful reminiscences of woodland excursions. You may know him by the flash of scarlet on his outstretched wings and tail as he flies past you with vigorous, bounding flight, by the conspicuous white rump-patch and by his loud, clear, drawn-out call-note.

We have a whip-poor-will, which breeds in our mountains. Whether it is the effect of climate or not I cannot say, but certain it is the bird has become lazy and only calls *poor will! poor will!* Upon still, summer nights this note may

often be heard in the Sierra forests, but the bird is so quiet and sequestered by day, and so closely resembles the color of the limb of the tree or the brown of the earth upon which it rests, that a person may consider it a piece of rare good fortune to meet with the author of the plaintive call. The western night-hawk, which belongs in the same family, is not so strictly nocturnal in its habits, and may often be observed during the daytime swooping about in the air after insects.

The swifts, or chimney-swallows, as they were formerly erroneously called, are represented in California by three of the four North American species. The most common form, Vaux's swift, is closely allied to the familiar chimney-swallow of the Eastern states, although I have never observed it nesting in chimneys. It breeds in hollow trees amid the redwoods, gumming a slight nest of sticks to the inside of the tree by means of its saliva. At dusk it comes

forth with swift, corkscrew flight, on fluttering wings, to catch its insect food about the streams. The only other species with which I am familiar is the white-throated swift, a larger, more powerful bird, with a loud, chattering cry and less nocturnal in habits. I found it abundant about Capistrano Mission durthe winter season, and breeding amid the rocks at Mt. Diablo. The black swift also occurs in certain limited regions within our confines.

We all know the humming-birds, the tiniest of the feathered race, with their beautiful iridescent coronets and necklaces, their whirring, insect flight, their alertness and vivacity; and most of us have, on some lucky day, found their exquisite little lichen-covered down-lined basket, deftly hidden upon the limb of a tree and holding two of the daintiest white dots of eggs that mother bird ever brooded over. Concerning the different species of hummers, as they are termed in the bird books, compara-

tively few of you have had opportunity to discriminate. Three species are common in this vicinity—Anna's hummer, a fair-sized bird of its kind, with a back of shimmering green, showing a yellowish tinge in certain lights, and a wonderful crown and gorget of purplish lilac, changing to a deep fiery red—an ever present, ever familiar species; the rufous hummer, a much smaller form, with the back colored a bright rufous, somewhat intermixed with green, the reddish hue extending over much of the breast, finally merging into white below, with a throat of scintillating coppery red; and Allen's hummer, indistinguishable from the last except by the specialist. The black-chinned and the calliope hummers are confined to our mountains, while Costa's hummer occurs only in the southern portions of the state.

There remains but one other order to claim our attention, the Passeres or perching birds. This is the highest group and includes the greatest number

of species, many of which are familiar to you all. The sparrows, the warblers and the wrens fall within its limits, as well as the crows and jays. It is divided into two suborders, the Clamatores or birds that call, and the Oscines or birds that sing. I may add in parenthesis that some birds which are technically song-birds do not sing, as for instance, the crow.

The calling birds include the tyrant flycatchers, of which we have two representatives, the western king-bird and the ash-throated flycatcher; the phœbe birds, two of which are found here—Say's pewee, nesting in the mountains and wintering in the valleys, and the black pewee, a very common and domestic little fellow, nesting under porches and in outhouses in all our country districts; and quite an array of little flycatchers in our woodland, many of which are very difficult even for an expert to distinguish. The olive-sided flycatcher, the western wood-pewee and western flycatcher are the most abundant species, their plaintive

calls being characteristic woodland notes during the summer-time.

The singing birds are a host in themselves, embracing all the sweet-voiced inhabitants of our hills and groves. They are mostly small in size and represent the highest type of bird development. A mere enumeration of the families of this order, within which are numerous genera and a still greater number of species, will suffice to indicate its extent and to recall many of our most familiar birds. It embraces the larks, the crows and jays, the starlings, the great finch and sparrow group, the tanagers, the swallows, the waxwings, shrikes, vireos, wood-warblers, wagtails, dippers, wrens, creepers, nuthatches, and titmice, the kinglets and gnatcatchers, and finally the thrush family, which includes many songsters endeared to us by association and fable, such as the robin, the bluebird and the thrush.

Although many of our poets have not awakened to the fact, the skylark is not

found in America, except in a few localities where it has been introduced. The horned larks replace it with us, being distributed over the entire northern portions of North America. I have known them along the bleak, exposed bluffs on the shores of Lake Michigan, on the sage-brush plains of Nevada, and in various portions of California. The horned lark has been subdivided into a number of climatic races, marked by slight differences in size and tone of color, but in all, the back is buffy or vinaceous, sometimes pallid and sometimes ruddy, the head is strikingly marked with black ear-tufts and cheek-patches, while a crescent of the same adorns the breast. Otherwise the head is white, more or less strongly tinged with yellow and the under parts are buffy. The streaked horned lark is common along our bay shore during the winter time, nesting in more northern latitudes. The crow family is well represented in California. Although the

crow itself is now exterminated about Berkeley, it is still common in Marin County and on Angel Island in San Francisco Bay. In the southern part of the state the plowed fields are fairly alive with them in the springtime—the same old rascals that have gained such an unenviable reputation in the east. Ravens frequent inaccessible cliffs by the sea or the wastes of the interior plains.

The crest of the Sierras separates the range of our two magpies. They are identical in every respect save for the color of the bill, which is black upon the eastern slope of the Sierras and yellow in California. They are noisy, showy, and highly entertaining birds, helping to enliven the dreary desert wastes, where they are abundant near every trickling stream of water.

Several species of jays are found in California (including the interesting Clark's nutcracker), in contrast to the one species which occurs in the east.

The two commonest forms here are the blue-fronted and the California jays. Either the blue-fronted or Stellar's jay, the two being but geographical variations of the same bird, is common in all of our mountains. Their range may be said to be coincident with the conifers, among which they are always present and abundant. This bird is a large, showy fellow with a conspicuous crest, an ornament wholly absent in the California jay, which is the common species of the valley region. He is as characteristic an inhabitant of the oaks as the former is of the pines, and is probably one of our best-known California birds.

In the starling family I need scarcely remind you of our meadow-lark, with golden throat and silver voice, which we are exterminating with so ruthless a hand in order that our gourmands may have a mouthful of their dainty breasts. Bullock's oriole, a loud, inspiring songster, flashes in coat of black and golden orange among our trees all summer,

while in the southern part of the state the Arizona hooded oriole is likewise common. The red-winged blackbirds also belong to the starling family. A flock of these coal-black fellows, with their scarlet shoulder patches, is a beautiful sight indeed, and their sweet *twiddle diddle diddle* from the swamp of tules is one of the delights of early spring.

The great finch family is represented in North America by some thirty-four genera, nearly all of which are present in California. It includes the sparrows, linnets, goldfinches, crossbills, grosbeaks —in fact all the thick-billed seed eaters, among them being many of our best-known birds. The song-sparrow is perhaps the most generally distributed North American member of the group and one of the most popular of our song birds. Its song is a humble lay, sweet and confiding in spirit, which seems to accord well with the simple singer. The song-sparrows are subdivided into a number of race forms, Samuel's being the variety

occurring along our coast and Heermann's in the interior. Even a trained specialist cannot always distinguish them, however.

In attempting, in the brief limits of a single essay, to give you even the most general conception of our California birds I have undertaken an impossible task. The wheels of the machinery of a classification, necessarily inadequate and arbitrary in many respects, creak somewhat despite their lubrication. The anatomist and the systematist are ever lurking in the background, and the odor of bird skins and preservatives has not been wholly eliminated, but before we part I beg you to have a glance with me at my friends in their native haunts, unmindful of their place in the scheme of the check-list.

We are in the redwoods upon a warm day in midsummer. The little mountain stream is tumbling over its gray rocks with a ceaseless rippling sound. The tall trees loom up all about us, and

the sunlight pierces the foliage only in occasional loopholes, forming here and there patches of gold upon the ground. Away off somewhere the sweet, tender note of the mourning-dove is sounding *coo' coo*, full of melancholy and dreamy love. Suddenly a little band of rufous-backed chickadees comes bobbing about with their merry, wheezy chatter and their restless, dainty ways. The blue-fronted jay, in his handsome blue dress and with his showy crest, shouts explosively, and then a russet-backed thrush whistles. I fancy all the other birds are hushed in awe, for only the low murmur of the water and the far-away sighing of the tree tops is heard as an accompaniment. Rich and pure and joyous is the song. It is a strain of triumph and aspiration, mellow and self-contained. He who listens to it will be uplifted. I fancy it is the disembodied soul of a martyr sounding thanksgiving for his release.

Another day and another place! The pine woods are about us and snow is

upon the ground. We hear a sharp, short squeak, followed by a rapping upon the bark of a tree. Clinging to the trunk is a Harris's woodpecker, busily searching for hidden insects in the bark. Suddenly, with a loud whirring of wings, a flock of mountain-quail start out of the underbrush and scatter in the distance. We had nearly trodden upon them before they left their snug covert. A little brown body suddenly flits upon a twig near by, fearless and unconcerned. It is a winter wren, always cheerful and busy in the worst of weather.

Even upon the alkali plains, where little grows save sage-brush, cacti and yuccas, the birds are not wanting. The sage-thrasher sings in such wastes and the pallid little Bell's sparrow is at home there. Where the desert sands would blister the feet, the road-runner is content to dwell, and the cactus-wren rears her brood amid the thorns, defying the withering heat of the sun.

Upon the remotest of ocean seas, as upon the barrenest of rocky shores, some birds find an abiding place, and there is a joy in their companionship which cannot be translated into words. You who would find a new delight in the wild and waste places of the earth, a new meaning to life, and an enlarged sympathy with your fellow creatures, should seek them out, not in the books but in their homes. One bird learned and known as an individual creature, with a life all its own, is worth volumes of reading. Listen to their call-notes; observe their plumage and their motions, seek out their homes, and note their devotion to their young. Then will the lower animals become invested with a new dignity, and the homes builded not with hands will become as sacred as the dwelling-place of your neighbor.

PATROLLING THE BEACH.

IT is not only those who go forth on the sea in ships that have reason to dread our winter southwest storms. When the bark upon the ocean is scudding along under close-reefed topsails, with her decks all awash and the wind shrieking in the rigging, the mightiest of the ocean birds must trim their sails and steer for the open sea, lest they, too, fall victims to the fearful surf that leaps and smites with irresistible power. In their mastery of the air lies their safety, but in their overconfidence and pride, their doom. They venture too near the boisterous water and are stricken down by the waves, powerless, lost.

It is a wonderful experience to go

out to the Cliff House at the close of such a storm and walk down the long beach-line toward the old Ocean House, some miles to the southward. The sky is still dark and angry looking, and the wind comes sweeping up the beach and out of the sea. The salt spray is blown into our faces and the waves come crashing in on the beach in mountains of white, glittering spray, roaring and thundering until the very sand underfoot seems to tremble with the commotion. Overhead a gull sails swiftly by and vanishes in the mist like a storm-blown fleck of foam. Not another thing of life is visible. The grass upon the sand-dunes is wet and bends before the wind. The beach sand is wet and sodden, and the moist clouds hurry overhead. The beach is strewn with brown, oozing strands of kelp, with ribbons, whip-lashes and bladdery floats, all torn from their ocean bed by the might of the storm. Jelly-fish, limp and white, lie on the sand,

and broken shells—all testifying to the power of the tempest.

Here and there amid the kelp, or sometimes along the open beach at the line of high tide, lie the bodies of the birds which have been overcome by the elements. I fancy I can hear their wild cries in the night, almost lost in the tumult of the gale, as the great white ghosts of waves leap up and drag them under. Even the albatross has not been spared, for here he lies, his plumage wet and bedraggled, and his immense pinions half buried in the sand—the king of sea birds, the master of the air! See his huge, brown back, his breast of gray, mottled with brown, his feet of livid gray, and his large, tube-nosed beak of a pinkish flesh-color, tipped with blue. A day ago his broad wings were swinging him down into the cold, quivering hollows, between the towering wave crests, and he was reveling in the tumult of the storm. To-day he is but a clod for the life-

saving patrolman to kick as he passes along the beach.

Hurrying on, with numb hands and ears stinging from the cold wind, our attention is presently arrested by the body of another dead bird. At first sight it might well be mistaken for a gull with a broken beak, for it has the web-feet, the gull's blue-gray back, and the white breast. The bill, however, is not broken, but curiously indented, with two tubes for the nostrils upon the top, like a double-barreled shotgun. It is the Pacific fulmar petrel, a relative of the albatross, although much smaller in size. It appears to be one of the most frequent victims of the winter gales, despite its powerful and sustained flight. I have seen it in its Alaskan summer home, nesting upon the bare rock cliffs of Bering Sea, or lightly skimming the waves on outstretched pinions, motionless save for an occasional flutter; but here it has found a last resting place upon the wave-swept sands of our inhospitable coast.

Farther along on the beach are some little creatures in motion, and we press on for a nearer view. They are running about perilously near to the crashing breakers, but nimbly escaping every onrushing wave. They resemble plovers or sandpipers with their slender legs, long, sharply-pointed wings, and white breasts, but they prove to be surf birds, and as we get nearer to them we see the plain brown color of their backs. They are too shy for close inspection, however, and go scudding away with the wind at the first intimation of danger.

Again our attention is arrested by a dead bird on the beach, a Brandt's cormorant, which has succumbed to the elements, and, not far from it, a Pacific black-throated loon. Here is a creature almost as much at home underneath the water as upon the surface, yet unable to endure the fierce shock of the waves. Continuing our quest we find that other redoubtable diver, the western grebe.

The smooth sheen of the white breast is conspicuous even when the feathers are wet and soiled with sand, and we notice the black cap extending in a line down the back of the long, slender neck, and merging into the dark grayish brown of the back. That long, sharp beak will never more cause consternation among the schools of little fish that throng the coast waters.

We are less surprised to find that many scoters have been lost in the gale, for such heavy-bodied ducks would be powerless when even the albatross could not cope with the elements. Yonder lies a fine fellow with his duck bill curiously puffed out at the base, and his jet-black plumage relieved by a white wing-patch. He is called the white-winged scoter, and a merry life he has led with his companions, sporting in the surf, swimming, diving or flapping away in his clumsy fashion until overtaken by this winter storm. There are two other surf ducks which are

often killed and cast upon the beach—the American black and the surf scoters. The male of the American scoter is black all over, while the surf scoter has white markings on the forehead, back and sides of head. The white markings of the males are repeated, although generally more or less restricted upon the brown females.

It is exciting work, this patrolling the beach after a storm, with the tumult of the elements about us and the zest of new discoveries to urge us on. At any moment we may happen upon some rare form of bird life at our feet, some creature which nature has ruthlessly discarded, but which science may find of great value. Even the bleached bones of the victims of other storms tell their story to him who is skilled to read it, and a broken pelvis in the sand may be full of interest and significance.

Of all the discoveries I have made along the ocean beach none have interested me more, I think, than that of the

rhinoceros auklet. It is one of those strange, low forms of sea bird which recalls the life of some earlier geological epoch. During the mating season a knob or horn-like protuberance adorns the base of the upper mandible, but, like the antlers of a deer, it is shed in the autumn time, to be renewed the following spring. The back is plain bluish black, and the under parts are grayish and white. Two narrow tufts of white feathers vary the sides of the head, one extending in a line back of the eye, and the other back from the corner of the mouth. A bird of this species, which I found about the middle of March, had a dark yellow bill with a narrow line of black on the ridge of the upper mandible. The feet were pale blue in color with webs and toe-nails of black. There is an odor of musk about this species similar to that of the fulmars and petrels.

Cassin's auklet, a demure little creature in black and gray, inhabiting the

Pacific Coast as far north as Alaska, is another frequent victim of the storms. The gulls, too, with all their ease and grace upon the wing, share a like fate, and I find on my list of storm victims a number of species which have been washed ashore.

Having walked the length of the exposed beach we turn our faces homeward, and are almost lifted along on our way by the favoring wind. All about is desolation—the gray sky, the leaden water, the shining white rollers and the dreary sand, with only the roar and boom of the breakers sounding their endless moan. A few drops of water on our faces give warning that the storm is not over, and we quicken our pace toward the station. The Seal Rocks stand out black against their frame of crashing surf. The curtain of mist closes down closer about us. Our tramp on the beach is at an end, and already the incoming tide has washed away our footprints from the

hard, wet sand; but the memory of the day will linger long in the mind, with the salt sea smell, the wonders of bird life spread before us, and the dreary grandeur of nature, where the wind and seas are left to their own cruel will upon the deserted shore.

A TRIP TO THE FARALLONES.

AT daylight, on a Sunday morning in July, I found myself with one companion standing upon Fisherman's Wharf in San Francisco and waiting for the signal to start upon a trip to the Farallones. The early hour had been chosen on account of the tide, which was then on the ebb, a circumstance of no little importance in undertaking to beat out to sea through the Golden Gate against the fresh head wind which was then blowing. The sun was just flushing the misty sky over the Berkeley hills across the bay, and the staunch craft of the Greek fishermen were bobbing about at their moorings beside us. One or two were

already starting off and spreading their graceful lateen sails to the morning breeze. A group of bronzed fishermen, in their blue shirts, rubber boots, and bright sashes, were at work making ready some of the boats for the day's labor, washing seines, hauling them in to dry, and cleaning off the decks.

The captain and two hands, composing the crew of our little boat, were late in arriving, but presently appeared on the wharf with supplies for the trip. Like most of the fishermen, our men were Greeks, understanding but little English and speaking less. Our boat was the largest of the fishermen's one-masted craft with lateen sails, and was decked over, leaving an apartment below in which one might sit or crawl about in the darkness. All being ready, the anchor was drawn in and stowed below, and the long oars were brought into use to carry us well out into the stream. By this time the breeze had freshened so that the water

was flecked with big white combers. Several fishing boats had started out before us and a number followed closely after, making a picturesque little flotilla scudding along under closely reefed sails. The raising of our mainsail in so stiff a breeze was attended with no little difficulty, but at last, after much pulling, jumping about, shouting, and dodging of flapping canvas and swinging boom, it was up and we were started on our voyage.

My companion and I were safely stowed out of harm's way below deck, with the hatch tightly closed over our heads and the odors of unsavory viands and bilge water about us in the darkness. The boat was bobbing about like a cork and the one controlling passion of our lives was to get out of our prison into the sunlight. This we presently insisted on doing, and, upon opening the hatch and standing up in the well, life took on quite a different aspect. The cold, salt air soon re-

stored us to a more comfortable frame of mind, although, every few minutes, a vigorous wave would come *cathud* against the bow and hurl a bucketful of water in our faces. The fortunate possession of a rubber coat saved me from being completely drenched, and, with the exception of the seepage from an occasional shower of spray running down my neck, and a pair of wet shoes, I kept tolerably dry. The case was otherwise with my companion, however; he had no rubber coat, and was accordingly soon compelled to go below, drenched and disconsolate.

We passed the ships anchored in the stream. Alcatraz, with its array of fortifications, was on the right of us and Black Point on the left. As we stood out past Lime Point, in the teeth of a stiff breeze, I occupied myself watching the California murres disporting in the water. The murre is one of the low forms of sea bird which nest along the exposed rocky cliffs of both the Atlan-

tic and Pacific oceans. In size it about equals a small gull, but has shorter, stiffer wings and a sharper style of bill; in color it is dark sooty brown on the back, head and throat, with white on the under parts of the body.

From an examination of the dead bird one would suppose the murre must be a slow and clumsy flier, so small are the wings in proportion to the body; but, when once started, it flies with great swiftness, its sharply-pointed body cleaving the air like a spear, and its compact little wings whirring like a windmill. Those flying about our boat were very tame, and allowed us to draw quite close before making any attempt to escape. Some would then dive with an impatient jerk, but the majority would start to fly. Apparently not having the time nor energy to lift their bodies out of the water, they would flap along on the surface, splashing and scuffling in a ludicrously frantic manner. Occasionally some peculiarly energetic

individual would actually lift himself above the sustaining fluid, but, apparently blinded in his hurry to escape, would plunge directly at the first wave that happened to be slightly higher than usual, and tumble into the water in the most awkward manner imaginable.

I noticed that whenever the birds dived the wings were thrown out, seemingly to assist in swimming, instead of being folded close to the body, as with most diving birds. Later observations confirmed the theory that they swim under water, using their wings as well as their feet, for they may frequently be seen from the Farallone rocks propelling themselves in this manner while submerged. Indeed, the form of the wing is curiously analogous to that of the penguin, being shaped something like a flipper, and very stiff and compact. It is, of course, only an analogy, the penguin's wing being scaled, while the character of the murre's wing is due to the stiffness and shortness of the

feathers. It seems not improbable, however, that the murre is gradually losing the power of flight, just as the great auk lost it, in order to gain greater freedom in swimming under water. Its difficulty in rising from the surface of the wave and its habit of awkwardly falling back into it would seem to argue in favor of this view, despite its swift flight in a strong wind.

In all this digression it must not be forgotten that the breeze was still blowing and our little craft tumbling about as it approached the bar of the Golden Gate. An occasional Brandt's cormorant flapped past, its long neck stretched far ahead of the clumsy, black body, as if trying its best to part company with so slow a companion. When a little way out at sea, we noticed, slightly isolated from the mainland, a large rock completely whitened with the guano of this bird, a fact indicating the presence of a large rookery.

The wind, which had been uncom-

fortably brisk inside the bay, left us almost entirely after we were well off the shore, and we were soon rolling aimlessly on the broad ocean swells, with only now and then a puff of air to make the sails flap. Thus we spent the rest of the day, the great glassy undulating surface of the sea rocking us about upon the very threshold of our journey, with the bleak coast-line visible far behind us—bold, bare and black in hue, save for some yellow patches of dead grass—and the Farallones lost in the mist at sea. The sun went down behind them and out of the west came the cold, pervasive fog, folding us in its mantle of utter darkness. Ships were near us, becalmed in like manner. At intervals their fog-horns blew, and our captain responded upon a dismal tin horn. One ship drew so near that we could hear the cries of the men as they tugged at the ropes, the voice of the mate calling orders, and the noise of the flapping sails.

We went supperless to bed, our stomachs not admitting of experiments with the coarse fare of the fishermen, and lay in our close, damp quarters in an uneasy sleep. At daybreak next morning the dark, lead-colored water and foggy air looked cheerless enough, but we were consoled by the information that we were sailing under a good breeze directly toward our destination. Soon the North Farallones loomed up through the fog—little bare rocks visible only as we rose on the crest of a wave, with the surf dashing against their sides. Presently Midway Rock was passed and at last we were in sight of South Farallone. Almost before we knew it the mainsail had been lowered. As we rounded a projecting rock the jib was taken in and we slipped past Sugar Loaf Rock into Fisherman's Bay, where the anchor was dropped and the fog-horn blown to summon the eggers on shore to send us a skiff in which to land. Drawing

near the island we found ourselves in a new and strange wonderland. There was but a bare, jagged ridge of rock cut out in places into great cones and pyramids. Yonder was one shaped like a titanic beehive and about it swarmed a vast throng of sea birds in lieu of bees. Off toward the farther end was a rock with a little archway cut through it near the top. The rocks were of a light pinkish or cream color, from the guano upon them, interspersed with patches of pale green where some mosses or lichens had taken root. Lower down, where the waves dashed upon them, they were clean and almost black in color, while, in beautiful contrast to their somber hue, the breakers were shattered into white foam and pale-green opaline tints. But that which interested us most was the vast assemblage of birds. Every cranny upon the face of the rough, granitic cliffs was alive with murres, uttering their characteristic note, some at rest, some flutter-

ing and scrambling or bobbing their heads, the whole scene being one of indescribably weird animation, and unlike anything else imaginable unless it be the witches in Faust on Walpurgis night. Here and there the black figure of a cormorant upon her nest was noticed, or one would fly past with a fish in her bill, headed toward her young. Occasionally a puffin, or sea parrot, as he is aptly called—a queer fellow with his immense red bill—would pass our way. The most familiar birds were the western gulls, which flocked about the boat in considerable numbers, displaying their beautiful slate-blue mantles and yellow, scarlet-spotted bills. They were attracted by the refuse of the men's breakfast which had been thrown overboard in the cove, but in spite of their fine plumage and graceful actions, they proved to be disagreeable, noisy, quarrelsome birds.

After our half-hour of impatient waiting the eggers appeared on the

cliff above us, and, lowering a skiff which hung suspended from a sling, rowed out to take us ashore. Once safely landed we climbed up the long, ladder stairway to the level bluff whence the roadway leads around to the lighthouse settlement. Having fasted for thirty-six hours it was annoying to be overcome by seasickness and to be compelled to take a cup of tea in lieu of breakfast. However, time was precious, and, as we had come on a scientific excursion, we were determined to make the best of it. The eggers started early on their morning's round, so we trudged along after them as briskly as we could.

It may be well to digress a few moments to explain the vocation of egging as carried on at the Farallones a few years ago. The egg of the California murre was found to have possibilities, as a marketable commodity, of being converted into omelettes and sundry other mysterious dishes in the San

Francisco restaurants. The shell is so tough that the eggs may be tossed about almost as freely as so many cobblestones, thus making the cargo an especially easy one to handle. A party of Greek fishermen made a practice of camping upon the Farallones during the egging season and gathering enough eggs to keep one of their largest craft constantly employed transporting them to town. Upon establishing themselves on the island they would first go about the accessible area occupied by the birds and destroy every egg which could be found. A day or two later they would repeat their visit, gathering a large supply of fresh eggs. These visits were continued every second or third day of the season, until the resources of the birds were about exhausted. The eggers wore rope shoes to make their footing secure upon the dangerous, rocky ledges, and the fronts of their shirts were converted into great pockets in which to carry the

plunder. Ropes, to which the men could cling as they advanced, were secured to the rocks in the more perilous places. The government has now wisely put a stop to this traffic, which was rapidly depleting this locality of its sea birds.

As we started off, following the course of the eggers, the gulls were by far the most conspicuous and noisy birds seen. Their most common note may be expressed by the syllables *quock-kuck-kuck-kuck*, uttered very rapidly in a low, guttural tone. Sometimes it was varied thus—*kuck-kuck-kuck-ka*—the quality of tone being the same as in the first instance. Frequently a higher cry would be heard which may be indicated by the letters *ki'-aa*, with a strong accent on the first syllable. Again, one would utter a rattling, guttural cry, which sounded like a man being throttled. The young were quite common about the rocks, white in color, spotted all

over with dusky gray. Upon being approached they would run and attempt to squeeze into any little cranny in the rocks they happened to espy, but were very readily caught by hand. The nest is a simple affair, composed of dry weeds, and placed almost anywhere upon a rocky hillside. No nests were observed on the steep cliffs overhanging the sea, the favorite situation being a hillside of moderate slope. The eggs are remarkably well protected in color, and the nest itself is so trifling an affair that it may frequently be almost stepped upon without being discovered, unless the attention is especially directed toward finding it. The birds are extremely noisy and vociferous as long as an intruder remains in their territory, hovering over him in large numbers and swooping down upon him with menacing cries and gestures. Altogether, one feels more comfortable when he gets off their preserves. The birds may, however, be fairly charged with

inconsistency, for they are inveterate plunderers themselves. As the eggers go about the rocks, starting all the birds from their nests, the gulls follow closely in their train, breaking every cormorant's egg which they chance upon, and devouring the contents. They even manage to crack the tough shell of the murre's eggs if any happen to escape the vigilance of the eggers.

Continuing our scramble up the rocks we presently reached the summit of the west end, where a scene never to be forgotten lay before us. We were upon the very edge of a precipice with a sheer drop of several hundred feet to the sea below. Far beneath, the angry surf was foaming and thundering, while away off was the unbroken horizon line of the ocean, misty and vast, distinguished with uncertainty from the gray-blue sky. All about the rocky ledges were vast crowds of murres, huddled upon the narrow rims of the cliff wall. It was a scene of indescrib-

able animation. Some of the birds were busy dressing their plumage, while now and then one would rise up and flap its wings as if to relieve the tension of its cramped position, and then settle back contentedly in the same spot. A bird upon the topmost ridge stretched its neck out and leaned far forward as if contemplating a plunge into the seething waters below. One of their most curious habits is that of bowing. The first bird in a row will gravely bow his head, perhaps once, or, not infrequently, two or three times, followed in turn by each one in the assembly. Sometimes the motion is more undignified, like a sudden ducking of the head as if to dodge a blow, and the entire row may participate in the ceremony at once.

Each mother murre lays one enormous egg upon the bare rocky ledge, and this she guards with unfailing care during the long period of incubation. The birds set upright with their bodies

erect and their heads held high. The extreme toughness of the egg insures it against harm upon the naked rock, and the striking diversity in markings, I suspect, aids the mother bird in distinguishing her treasure from that of her neighbor. The eggs are extremely pointed, thus lessening the danger of their rolling off the cliffs, and they are most commonly colored a pale sea green, variously marked, splashed and scrawled with black and brown.

Three species of cormorants breed upon the Farallones, the commonest being Brandt's, which nests in large colonies. It may be known by the peculiar white, stiff growth of feathers on the sides of the neck, in strong contrast to the iridescent greenish or bluish-black plumage. Baird's cormorant is much smaller than Brandt's, and the iridescent effect of the plumage is much more lustrous. There is also a patch of white on the flanks which serves as a distinguishing mark, and two crests,

one on top of the head, the other on the back of the neck. The Farallone cormorant may be known, in breeding plumage, by two crests of white plumes, one over each eye, and by the orange color of the gular pouch or sack of naked skin at the base of the bill. The gular pouch of Brandt's cormorant is dull blue, and of Baird's, dull red, during the nesting period.

Between the eggers and the gulls the Brandt's cormorants had fared badly, and we failed to discover any nests containing eggs. It is worthy of note that while Brandt's cormorant decorates its nest around the sides with bright, fresh seaweed, the other two species build their nests exclusively of dried weeds. We visited the nesting place of the Farallone cormorants and found many nests containing young. They are, I think, the ugliest productions of nature with which I am familiar, the texture of their bodies suggesting a black, greasy kid glove. They

are almost destitute of feathers, a little dark fuzz here and there indicating where the plumes will eventually appear, while the pin-feathers may have started as dark-colored quills. On our approaching a nest of young they would open their immense mouths and stretch their necks angrily toward the intruder, uttering a low, hoarse, plaintive *kwa*, *kwa*, *kwa*, *kwa*, *kwa*. On drawing nearer the cries become more violent, the birds fairly squawking in their excitement. One nest that I observed particularly, contained two young, one much larger than the other. As we sat watching them, at a short distance, the older bird was noticed preening and caressing the younger with its bill—an unexpected instance of brotherly or sisterly interest among such low creatures. Upon taking the younger bird from the nest, however, the older one, instead of manifesting a decent amount of grief over the loss of its companion, commenced, the moment its own safety

was no longer menaced, preening and dressing its own greasy skin in the most unconcerned manner imaginable. Thus was my little romance of brotherly love suddenly overturned.

Baird's cormorant is more solitary in its habits than the other two species. It resorts to steep cliffs upon which to build its home, and I observed one lonely bird upon her nest on a little shelf of rock only about fifty feet above the booming surf, and completely isolated not only from other individuals of her own species but from all the other birds of the island. What were the thoughts of that mother setting there night and day above the booming surf with the salt spray blown upon her, the precipice of rocks above, and no respite from the ocean's unceasing roar? Did she love those chalky, white-green eggs beneath her, and was there a tenderness in her cormorant heart that compensated for the want of society and change in that wild solitude?

The pigeon guillemot is very abundant upon the islands, although it does not congregate in such vast numbers as its cousin, the California murre. It is a smaller species and rather more slender in build. When sitting upon the rocks, facing the observer, it appears as a very dark brown bird with conspicuous scarlet feet. Its other most striking mark is a broad patch of white on the wings, which is noticeable both when the bird is at rest and on the wing. When standing, the bird habitually rests the entire foot (what is popularly miscalled the leg) upon the ground, holding the body erect in a vertical position. At other times it may be seen squatting, with the body upon the rocks. I noticed many with fishes in their bills, but whether for their own use or for the young I was unable to determine. When anyone approaches they sit with their long, slender bills wide open and utter a high, pensive, long drawn out squeak—*peeee-*

eeie. The young are reared in crannies of the rock.

One of the most interesting birds which nests upon the Farallones is the tufted puffin, or sea parrot, as it is called. As one flies by we wonder how the little body can sustain that heavy head. Its enormous bill of brilliant vermilion, compressed sideways, presents a profile of grotesque dimensions. The general hue of the bird is blackish, with large, conspicuous cheek-patches of pure white, and plumes of pale yellow streaming from the sides of the head. It is a comparatively solitary bird, but nests very commonly in narrow caves or crannies of the rock, where it lays one large egg of a dirty whitish color. The sea parrots stand upright, after the fashion of the guillemots, and like them frequently rest the entire foot upon the ground. Their note may be described as a shrill, piping whistle.

In the same steep, rocky hillside, composed of coarse shale, where the puffins

nested, I also found the nests of Cassin's auklet. This little bird is nocturnal in its habits, so I saw little of the adults, although the young were found in their crannies and could always be recognized by the little upturned snub bill and the gray feet. At night, especially if the moon is up, the birds are very abundant and noisy. Their notes resemble the creaking of a rusty gate, and may be represented by the syllables *creek-a-reek! creek-a-reek! creek-a-reek!*

Another nocturnal bird of the island is the ashy petrel. It is perhaps not so rare but is difficult to discover on account of its secretive ways. The nest, which is generally placed under a large, loose rock, is frequently indicated by the strong, musky odor in its vicinity. The flight of the petrel is light, quick, and noiseless, resembling somewhat the movements of a bat. I did not hear any note uttered by the bird. It has been recently discovered that Leach's petrel also nests upon the Farallones. The

irrepressible western gulls, too, were abroad at night, and their note sounded as a pensive wail, indescribably weird and mournful as it mingled with the creaking of innumerable auklets, the roar of the waves, and the wind whistling about the sharp points of rock.

Although many land birds rest upon the inhospitable Farallone rocks during the migration season, and not a few fly against its powerful light to be dashed to death, only two species remain there to nest—the raven, which is rare and frequents only the most inaccessible portions, and the friendly little rock-wren, which is extremely abundant, nesting all over the lower levels.

Our visit was all too short for us to become fully acquainted with the host of strange birds, and it was with many regrets that we received word to embark. A brisk head wind was blowing as we put to sea, and there was no alternative to being shut in below deck and letting our cockle-shell be tossed

and banged about by the wind and waves. As we neared the shore, however, we stood off on another tack which eased the motion, and, as the sun came out of the fog, we emerged from our dark hole to find the blue water sparkling and dancing about us. Ere long we had crossed the bar and sailed merrily over the bay to our moorings at Fisherman's Wharf, feeling that we had added a new experience to our lives and had gained a peep into another of nature's wonderful treasure houses.

A DAY ON THE BAY SHORE.

E have chosen a day for our excursion when the tide is low in the morning, and have made an early start to see what the birds are about upon the mud-flats. Imagine the scene. We are upon the eastern shore of San Francisco Bay, a few miles north of Oakland. The country is low and rolling, gradually swelling back toward the base of the Berkeley Hills. Way off across the water rises Tamalpais, with its familiar, ever present contour against the sky; but what most concerns us is the great stretch of mud-flat, black, slimy and oozing from the receding tide, with a crowd of shore birds thronging upon it to feed. Here and there in the pools

still left are little crabs, holding up their menacing pincers as we approach. Miniature bubbling fountains indicate the hiding-places of clams. The stingaree, with its wicked tail, is lying in wait for us in some of the basins of water, and we shall do well to give him a wide berth.

It is a clear day in midwinter. The low, matted marsh-grass is reddish brown in color, contrasting with the dull blue water of the bay, the light green of the hills and the delicate, misty blue of the far-away mountains. We are soon conscious of the presence of many birds upon the mud-flats. Great flocks of sandpipers whirl past us, suddenly turning and flashing their white breasts in the sun in the course of their graceful evolutions. Curlews walk about in the shallow water with their long, slender, ungainly beaks seemingly very much in the way. Now a gull flaps calmly overhead, a duck whirs past with rapid wing-strokes, and away

off on the water we see a line of black-bodied cormorants lumbering over the surface of the tide.

It is time to inspect some of the birds about us with more care. What is that queer, ungainly form skulking in the marsh-grass? It is a bird about the size of a bantam hen, but with a longer neck, with slender bill and legs, and a body curiously compressed sidewise. It is elusive, running away into the tangle of swamp weeds and baffling pursuit. Patience enables us to get a good, clear view of the creature, and we feel certain that the California clapper rail must be unique among birds, so different is he from any feathered creature we have ever seen before. His lank figure and furtive manner stamp him at once as an unsocial, suspicious creature, and I dare say he has had good reason to become so. His back is somewhat streaked and varied in shades of olive-brown and ashy, and his breast is plain cinna-

mon in color, with bars of dusky on the grayish flanks. In the springtime the rails breed in these same marshes where they winter, laying some eight or ten eggs of a buff color, spotted with brown, the nest consisting of a few dried tules, depressed in the center and well hidden among the surrounding weeds.

Just back of the marsh-grass are little muddy pools, flooded only at very high tide, and now left to the kildeer plovers. They are noisy fellows, repeatedly uttering their loud, shrill, though unmusical cry—*kill-dee! kill-dee!* The kildeer is a bird about the size of a robin, rather plumper in build, and with long, pointed wing-feathers. Its head is white, variegated with markings of black, and its white breast is crossed by a double collar of black. The back is grayish brown and the rump bright rufous or cinnamon in color. The kildeer is a very common bird, even in upland fields

and its strikingly characteristic note when once learned can never be mistaken or forgotten.

The tide has been steadily going out since we arrived, and while the shore birds come crowding in to feed the water birds are flying about somewhat restlessly from one pond to another, or perchance crossing over to the deep water of the mid-bay. A whirring of wings and away speeds a flock of shoveller ducks, formed in a v-shaped file. Well may they be called shovellers, with their great, broad, flattened beaks, by means of which they scoop up their food from the mud. The teeth-like straining plates on the sides of the bill, so characteristic of the ducks, are unusually pronounced in this species. The male is gaily colored, with wings of white, blue, and green, a dark glossy-green head, white breast, and under parts of a chestnut hue, while the female is somewhat duller, having the green of the head replaced by mottled

brownish yellow, and the other markings more dulled and subdued.

As the shovellers disappear in the distance let us turn our attention to the sandpipers, running about in the mud and probing it for food with their fine, long, black beaks. What could be more dainty than these little shore wanderers, with slender necks, sharply pointed wings, long, black pipe-stems of legs, and plump, white breasts? They are invariably in flocks, sometimes of considerable numbers, and are never more at home than when tripping lightly over the soaking mud-flats, searching for the minute forms of marine life that constitute their food. Their flight is vigorous, yet light, and they are fond of sudden turns and evolutions on the wing.

See that little flock now, as it alights on an exposed strip of mud. It is a company of semipalmated, or, perchance, of least sandpipers, for so similar are the two birds in their winter

dress that a close inspection of the toes is necessary to distinguish them. As its name implies the former species has a web at the base of the toes which is lacking in the latter bird. However, the little fellows are simply enough attired, with snow-white breasts and backs of gray, mottled and streaked with dusky. In the springtime, just as they start on their long journey northward to their breeding-ground, they may sometimes be found in their more showy plumage of black, rufous, gray and white.

Another sandpiper is soon noticed upon the mud-flats not far away, which may be easily distinguished from the preceding bird by its considerably larger size. It is variously known as the American dunlin, the red-backed, or black-bellied sandpiper, although these two latter names are certainly not applicable to the bird as we see it in winter plumage, when it is not very different in color from the two smaller species. These three sandpipers are

the most common of the winter shore birds about San Francisco Bay, and everyone who visits the mud-flats at this season is sure to make their acquaintance.

A bird which in many respects seems very like a sandpiper, and which nevertheless differs from it in many essential particulars, frequents the bay shore at times and is well worth our careful attention. We may happen upon it on our midwinter ramble, although it is most common during a short period of the spring and autumn, while migrating from its far northern summer home to more southern regions. It is the red phalarope, a bird very much like the dunlin in build and general appearance, but which may be instantly known from any sandpiper by the fact that it habitually swims upon the water instead of wading. Its toes are slightly webbed at the base like the toes of the semi-palmated sandpiper, and it is further provided for swimming by a series of loose

flaps or lobes on the under side of the toes. This bird and another of the family, the northern phalarope, are both found about the bay shore and sometimes out on the water far from land. They are especially fond of the pools and inlets about the bay, where they may at times be seen in great numbers, the former species being by far the most numerous. They have one habit which I believe is unique among birds, and which serves to mark them even at a considerable distance. Every now and then, while swimming about, they will stop and whirl around in the water several times, almost as if revolving upon a pivot. I have never been able to ascertain the meaning of this singular trick, which always impresses me as an absurd, though graceful, performance. The phalaropes are, indeed, among the most interesting of the shore birds to me on account of their light, dainty, graceful ways, and their structure, so similar to that of a wader and yet

adapted to the habits of a swimmer. To see them gracefully picking up tiny marine life from the surface of the water with their long, fine, black bills, one might fancy them veritable water sprites. The red phalarope in winter plumage is simply but chastely colored, with a back of ashy gray, becoming darker on the wings, which are marked by a white bar, and a head and breast of pure white, turning to ashy on the sides.

While we have been watching the phalaropes in the land-locked pools the tide has been imperceptibly ebbing to the lowest point, until now it has been held in suspense and is mysteriously and insidiously creeping back. The breeze has been freshening with the incoming tide and the gulls commence to fly over the point. Far out on the flats the long-billed curlews are making the most of their opportunity and are probing the soft mud with their enormously elongated beaks, sometimes

thrusting them down quite to the base and bringing out of the slime many a tempting morsel. In their eager search for tit-bits they wade out into the water as far as the tops of their legs. Large flocks, sometimes numbering fifty or more individuals, frequently congregate about a favorable feeding place. The long-billed curlew is the largest of our waders, measuring about two feet in length, and is instantly recognizable by its abnormally long, slender and somewhat curving bill. It is colored in general a brownish cinnamon or rufous, darkest on the back and lightest on the throat. Another species, the Hudsonian curlew, is found, although much less commonly, about the bay shore. It is much smaller and has a considerably shorter bill.

Among the other waders which tarry upon the flats until reluctantly driven off by the incoming tide are the black-bellied plover and the black-necked stilt; but as the breeze freshens and the

tide comes stealthily lapping in, the shore birds grow more and more restless, and the swimming birds come flying past on the lookout for pools of deep water. A male butterball duck passes on whistling wings, showing his fine black and white plumage. Then follows a flock of big, white-winged scoters that splash into the water just off a rocky point where mussels are plenty. A little company of Forster's terns flit about just on the edge of shallow water, with their airy grace of movement, their long, slender wings and tail, their silver-blue and snowy-white plumage, and their lightsome plunges into the water after fish.

There is something strangely impressive about the silence of these shore birds. We are so accustomed to associate song, or at least the sweet calls of our woodland vocalists, with bird life, that to see the great stretches of exposed shore crowded with birds that are either silent or uttering strange cries,

croaks or quacks is a new experience to many of us. The gulls are usually silent and specter-like as they fly on graceful wing, with their heads turning now this way, and again that, in their constant search for food; but when once these beautiful scavengers have found a supply of food drifting on the tide they are the noisiest birds of the bay shore. They are voracious feeders, pouncing with great avidity upon any floating thing which is eatable, and uttering their loud cries until sometimes a vast throng congregates about the spot, with a tumultuous fluttering of wings.

At length the tide is so high that the mud-flats are no longer visible, and the shore birds have all disappeared. A Pacific black-throated loon swims gracefully over the choppy sea and suddenly slides down into the water out of sight. We look across the bay toward the Golden Gate and see the sails of outgoing and incoming vessels. The long

line of San Francisco is visible through the mist, and we see a ferry crossing from the Oakland side. What a host of birds haunt the shores of this great bay, each with habits and life of its own, yet how little do the multitudes of men who cross and recross the water know or care about them! But these birds of the bay shore are well worth knowing, so full of strange ways they are, so different from the happy creatures of field and grove. Many of them are relics of earlier and cruder forms of life, telling of nature's slow and painful march of progress.

See that grebe with its bill fashioned into a long, sharp, fish spear, its curious, lobed feet, its slender neck and small head, its oily, white breast and furtive manners. I cannot imagine any one growing fond of such a creature as this. Handle it and it smells of fish. Then turn from the water to the low growth of buckeyes on yonder point. A song-sparrow is singing in the thicket.

What a human little fellow he is, modest and friendly, full of good cheer, gentle in his ways and intelligent in his bearing. In these two species we see types of the lowest and highest of North American birds.

There are a number of land birds which live about the bay shore and which we cannot fail to see during our day's ramble. Down among the marsh-grass and along the very shores of the bay flock the interesting Bryant's sparrows. They belong to an obscurely colored genus, known as the savanna-sparrows, which are widely distributed over North America, and differ locally in trivial variations of size and intensity of coloration. All are buffy or brownish gray in color, streaked with blackish or brownish markings. The under parts, which are also streaked, are generally white in tone, and the edge of the wing and a line above the eye are yellowish. The savanna-sparrows are rather small, slender birds, with long wings and short

tails. Bryant's sparrow is a local variety inhabiting the salt marshes of San Francisco Bay, and distinguished from other forms by its very dark, pronounced tone of coloration. We may even be favored with the song of this little bird as it sits on a fence rail—a queer, wheezy attempt, sounding as if the bird had a cold.

The tule-wren is another inhabitant of the bay shore marshes, but we must be on the *qui vive* if we are to have even a passing glimpse of the little fellow. Let us walk into the midst of the dense tangle of low marsh-grass and try to flush one from its hiding-place. It will allow us to almost tread upon it before arising, and then flit away to another hiding-place, to disappear as effectually as the proverbial needle in a haystack.

The short-eared owl lives in these same marsh-grasses, and far above, the graceful, white-tailed kite, with snowy breast, is soaring in circles through the

air. In the fields close by the marshes are flocks of American pipits, running about and teetering every now and then in their curious fashion. A clump of buckeyes harbors the song-sparrow and the active little Audubon's warbler, while the call of the meadow-lark sounds afar off.

Such is the bay shore with its many forms of bird life. In the bushes the domestic little fellows who make their homes here, and upon the marshes the restless throngs that come and go with the tides, the hungry hordes from the Arctic shores eagerly scanning the oozy shallows for food, and off in the deep water the diving and swimming birds — what an assemblage it is and what fancies it suggests to the busy mind! Migration, that mysterious impulse of bird nature, which sets all wings in motion in spring and autumn for the long and perilous flight, a reminiscence of the dread power of the age of ice and the struggle for existence — that

bitter; unceasing conflict by which all that lives maintains its place upon the globe — these and many other problems are suggested by our day upon the bay shore, and we wend our way toward home pondering upon the richness and mystery of those things which lie about us on every side.

A GLIMPSE OF THE BIRDS OF BERKELEY.

AS the seasons come and go, a host of birds tarry within the confines of Berkeley, some to make their nests and rear their broods, others to sojourn for but a brief interval in passing from their summer to their winter haunts, and in the joyful return of spring. They inhabit the spreading branches of the live-oaks, and the open meadows are their home. They dwell in the leafy recesses of the cañons and haunt the shrubbery of our gardens.

It is impossible to understand our birds without knowing something of their surroundings — of the lovely reach of ascending plain from the bay shore

to the rolling slopes of the Berkeley Hills (mountains, our eastern friends call them); of the cold, clear streams of water which have cut their way from the hill crests down into the plain, forming lovely cañons with great old live-oaks in their lower and more open portions, and sweet-scented laurel or bay trees crowded into their narrower and more precipitous parts; of the great expanse of open hill slopes, green and tender during the months of winter rain, and soft brown and purple when the summer sun has parched the grass and flowers. These, with cultivated gardens and fields of grain, make the environment of our birds, and here they live their busy lives.

There comes a morning during the month of September when a peculiarly clear, crisp quality of the air first suggests the presence of autumn. It is something intangible, inexpressible, but to me vital and significant of change. In my morning walk I notice the first

red tips upon the maple leaves, and catch the first notes of autumn birds. I hear the call of the red-breasted nuthatch, a fine, monotonous, far-away pipe, uttered in a succession of short notes, and upon looking among the live-oaks detect the little fellow hopping about upon the bark. He is a mere scrap of a bird, with a back of bluish gray and a breast of a dull, rusty-red hue, a cap of black and a white stripe over the eye—a veritable gnome of the bark upon which he lives the year round. In its crannies he pries with his strong, sharply-pointed beak for his insect food, and in some hollow his little mate lays her eggs and rears her brood. With so many woodpecker traits he nevertheless differs widely in structure from that group, being more closely allied to the wrens and titmice. He is with us in greater or less abundance throughout the winter, and his very characteristic call may be heard from time to time both

in the University Grounds and in the cañons.

With the nuthatches come, from their northern breeding places, the pileolated warblers, and other shy wood creatures which haunt the quiet, out-of-the-way nooks, and shrink from the presence of man. The pileolated warbler is one of the loveliest, daintiest creatures that visit us. As I walk in my favorite nook in the hills, Woolsey's Cañon, to the north of the University Grounds, I see a lithe, active, alert little bird, gleaning for insects among the leaves, now high up among the branches, and again darting hither and thither downward to where the fine thread of water has formed a pool, there to bathe an instant and then, with a lightsome toss of spray flirted from its wings, to resume its quest among the bay leaves. It is a waif of gold with a crown of jet, and its song, a sweet, sudden burst of woodland music, is quite in keeping with the singer.

Let me picture my cañon in the autumn time, when the open hill slopes are covered with tar-weed and dead grass, and the country roads are deep in dust. There is a quiet, almost sacred feeling about the place, shut in by steep hill slopes, crowded with bay trees through which the sun filters in scattered beams, and carpeted with ferns and fallen leaves. Bulrushes, with their long, graceful filaments encircling their jointed stems, spring from the tangle of shrubbery, and the broad, soft leaves of the thimbleberry, now beginning to turn brown, fill in the recesses with foliage. Great slimy, yellowish green slugs cling to the moist rocks, and water-dogs sprawl stupidly in the pools.

A loud, ringing call sounds above as a flicker comes our way and announces his presence with an emphatic *ye up!* He is with us all the year through, and an interesting fellow I have found him. Not wholly a woodpecker, and yet too closely related to that family to be

widely parted, he is an anomaly in the bird world. Sometimes he alights upon the ground and grubs for food like a meadow-lark, while again he hops in true woodpecker fashion upon the tree trunk, pecking holes in the bark. He has the proud distinction of being the only California bird which habitually intermarries with an eastern representative of the genus — the golden-shafted flicker of the Atlantic States and the red-shafted flicker of the Pacific region intermingling in a most bewildering way, so that hybrids are almost as numerous in some sections as the pure species.

The flicker is a large, showy bird, somewhat greater than a robin in size, with a conspicuous white rump-patch, and with the shafts and inner webs of the wings and tail colored a bright scarlet. The male bird is also adorned with a streak of the same color on each side of the throat. The back is brown, closely barred with black, and

the under parts are pinkish buff, marked with a large black crescentic patch on the breast and conspicuous round black dots on the lower portions of the body.

In the springtime the flickers bore a deep hole in a decayed oak limb, and the mother bird lays there ten or more of the most beautiful eggs which ever gladdened a mother bird's heart, save that I fear her little home is too dark to give her so much as a peep at her treasures. They are white, with a wavy texture like water-marks in the shell, and, when fresh, beautifully flushed with pink, more delicate in color than a baby's ear. When the young brood are all hatched what a clamoring and calling there is about that hole, what an array of hungry beaks are thrust out awaiting the morsel that the busy parent carries to them! But now, in the autumn time, the family cares are ended and the flicker roams the woodland contented and well fed. Long may his piercing, buoyant call ring amid our hills, and

his coat of many colors adorn our landscape!

I cannot speak of noisy birds without recalling the jays, for they are the noisiest, rollicking, happy-go-lucky fellows that make their home in our cañons. They laugh and screech by turns, they question and scold. Even when on the wing they utter a succession of loud, insistent call-notes, and upon alighting, mischievously question in a shrill squeak "*well? well?*" I am speaking of the California jay, which is the common species about Berkeley—a long, rather slender fellow, without a crest such as the blue-fronted jay of the redwoods possesses. Its back is colored blue and brownish gray, and its breast is a lighter gray edged and faintly streaked with blue. Its manners are often quiet and dignified when sitting still and eyeing an intruder, not without a half scornful, half inquisitive glance, I fancy; but with a sudden whim it is aroused to animation, flirting its tail,

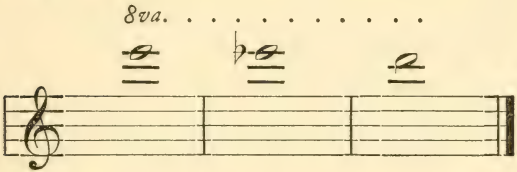
bending its head on one side and suddenly fluttering away with a loud laugh.

Another of my cañon friends is the wren-tit, a bird which is found only in California, and without a counterpart, so far as I am aware, the world over. He is a friendly little fellow, considerably smaller than a sparrow, but with a long tail, usually held erect in true wren fashion. Its plumage is soft and fluffy and its colors as sober as a monk's, brown above and below, but somewhat paler on the under portions where a tinge of cinnamon appears. The wren-tit is a fearless midget of a bird, hopping about in the tangle of blackberry vines almost within reach of my outstretched hand, but so quiet are its colors and so dense the thickets which it inhabits that the careless eye might well overlook it. The little low chatter which it utters tells us of its presence, and if we wait quietly for a moment it may even favor us with a song—a simple strain like a high-

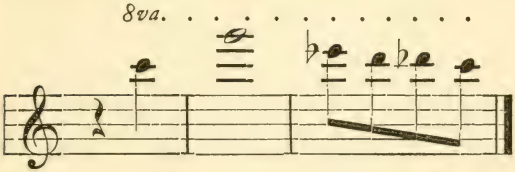
pitched pipe — *tit-tit-tit-t r r r r r ee!* but a sweet and characteristic note in our cañons.

As autumn moves on apace the winter birds assemble in full force. The golden-crowned sparrows come flocking from their Alaskan and British Columbian homes, and the Gambel's white-crowned sparrows from their breeding places in the mountains — the one adorned with a crown of dull gold, black bordered, and the other with a head marked with broad stripes of black and white. Both have backs of streaked brown and gray, and breasts of buff or ash. They are among our commonest and most familiar winter residents, dwelling in our gardens as well as in the thickets among the hills, and singing even during the milder rains. The call-note of both species is a lisping *tsip*, and their songs have the same quality of tone — a fine, high, long-drawn whistle. I have written down the most usual song of each species

in musical form, and repeat them as follows. The golden-crowned sparrow sings:



The song of Gambel's sparrow is a trifle more elaborate, commencing on an upward scale instead of the downward, as in the former case. Loud and clear comes from the rose-bushes the treble whistle:



Gambel's sparrow sings not only all day long but occasionally at night. Often upon a dark, misty night in February or March I have heard a sudden burst of bird music, and recognized

the very clearly marked strains of this bird. Coming out of the dark, damp night, so sudden and so beautiful, and followed by so perfect a calm, I know of no more impressive bird music.

When the rainy months of winter are ended and the meadow-lark is sounding his loud, rich strains from the field, and the linnet is fluttering and bubbling over with song, a host of merry travelers come hurrying to our trees and gardens. The jolly little western house-wren bobs about in the brush, and as the wild currant puts forth its first pink, pendulous blossoms, the beautiful little rufous humming-bird comes to dine upon them. I know not how he times his visit so closely, but certain it is that the pungent woody odor of these blossoms is inseparably linked in my mind with the fine, high, insect-like note of these pugnacious little mites in coats of shimmering fire, that come to us from Central America at the very first intimation of spring.

In April arrive the summer birds, full of the joy of the mating season. The Bullock's oriole, clad in black, orange and gold, sings its loud, elated strain from the tree tops, the black-headed grosbeak carols in the orchard, the lovely little blue-backed, red-breasted lazuli-bunting warbles in the shrubbery, and finally, the stately, russet-backed thrush, quiet and dignified in his coat of brown, with white, speckled breast, the most royal singer of our groves, sends forth upon the evening air such sweet organ tones that the whole night is full of melody.

I would that our birds might receive some measure of the appreciation which is due them, and that we might all turn at times from the busy affairs of life to listen to their sweet songs and winning ways. May they ever find within the confines of Berkeley a haven of refuge from that merciless persecution which is steadily reducing their numbers. May they find here loving friends

ready to champion their cause, and may they ever be considered the chief ornaments of our hills and gardens!

JANUARY IN BERKELEY.

IDWINTER about San Francisco Bay is a very different matter from the same season in regions where all is ice-bound and white with snow. The birds are not so keenly pressed for shelter and food here as in more rigorous climes. Seldom could it have been said here that "The owl for all his feathers, was a-cold," but there are exceptions to all rules, and especially to rules concerning the weather. I well remember my surprise during my first winter in California, after having been told that both thunder-storms and snow-storms were practically unknown here, at witnessing both phenomena together, as if in defiance of all precedents. I was espe-

cially interested to see what effect such an unusual occurrence would have upon the birds, and was pleased to see that they accepted it even more philosophically than I did. Even the tiny Anna's hummer, one of those frail creatures which we always associate with the summer sun, seemed not in the least disconcerted by the inclemency of the weather. A disconsolate California shrike perched upon a telegraph wire and wondered what had gone wrong with the season. In the shrubbery and weed patches of the meadows were golden-crowned and Gambel's white-crowned sparrows busily engaged in food-hunting among the rank vegetation, while flocks of American pipits were restlessly moving about in the more exposed fields. The western robin, too, was abroad, while late in the afternoon I observed flocks of meadow-larks flying from their feeding-ground in the meadows to their roosting-place in the hills.

Our winter birds are, on the whole, a happy colony, for the weather seldom grows so cold as on the day above mentioned, and the rain must be exceptionally severe and driving to dampen the ardor of bird nature. During the milder rains the Gambel's white and the golden-crowned sparrows seem to enjoy the most perfect content, for at no other season do they sing so constantly. It is not a loud, enthusiastic song, but rather a meditative, pensive strain of a fine, sweet, long-drawn character. In the hedge-rows by the orchard, when the birds are congregated in considerable numbers during the course of a dismal, slow, three weeks' rain, there will be a perfect medley of sweet tones from these two species. The white and golden-crowned sparrows, adorned with head-markings of black and white in the one species and black and gold in the other, are among the commonest of our winter birds. Gambel's white-crowned sparrow remains throughout

the year, although less abundant during the summer months. The California brown towhee is another very common resident, remaining with us both in summer and winter. He is considerably larger than a sparrow, although belonging in the same family, and is very soberly dressed in brown. His sprightly ways and domestic haunts make him a familiar and entertaining dooryard neighbor.

The trees are inhabited by a gay colony of birds at this season, free from all care save that of obtaining sufficient food. Among the commonest of them are the snowbird (more properly called Oregon junco), the western golden and the ruby-crowned kinglet, the western and the varied robins and the ever present wren-tit. The snowbird, or Oregon junco, is exclusively a winter visitor, nesting in the Sierra Nevada and Coast Range Mountains. He is a sociable little fellow of the sparrow tribe, always found in flocks during

the winter season, and generally in the bushes or low trees. In manners the junco is exceptionally bright and cheerful, never showing any signs of discontent, however dreary the day. His coat is of uniform slate color in general hue, varied with a shade of brown on the back, and abruptly broken across the breast, leaving the under parts pure white, except on the sides, which are of a buffy pinkish cast. The white tail-feathers, constantly exhibited in flight, are also characteristic marks of the species.

If the junco is merry, the kinglets are the incarnation of feathered light-heartedness. No larger than your thumb, these little midgets are full of restless animation and nervous enthusiasm. From spray to spray, branch to branch, and tree to tree they flit, with head up or down as suits the whim or convenience of the moment. The two species are of about the same size and general color—plain dull gray below

and olive-green above, with large inquisitive brown eyes in their tiny heads. They may readily be distinguished, however, by the crown, which has given them their name. The male ruby-crowned kinglet has a patch of flaming scarlet on the top of his head, although his prim little mate is wholly without adornment. The male golden-crowned kinglet has a spot of brilliant orange on the head, surrounded with yellow and bordered with stripes of white and black, and the female has a similar but simpler crown, with the light yellow replacing the orange. Equally distinct are the notes of the two species. The ruby-crown utters a high, pensive, far-away lisp of a note, which is an unfailing sign of the proximity of a troop of these birds, while the golden-crown has a fine, delicate undertone of chatter to indicate its whereabouts.

I have been told that the robin is not found in this part of the country, yet here he is in the January rain and

storms, the same dear friend known of old in Wisconsin summers. The scientists say he is different from his kinsmen east of the Rocky Mountains, because he has an eighth of an inch less white on the tip of his tail, but for all this I claim him for the same. In January, when he is ranging over the Berkeley hills in flocks, gorging on berries and roving at his own sweet will, he is, perhaps, less attractive than in the summer-time, when the duties of the home are all-engrossing, but I am partial to him even at this season, and rejoice with him as he utters his high, animated call-note, preparatory to launching forth on buoyant wing.

The varied robin is exclusively a bird of the Pacific Coast. In some shady recess amid the live-oaks or laurels it lurks — silent, retiring, specter-like. From its summer home in the far north it has come for the winter, but not like the common robin, full of

joy and vivacity. Some deep, brooding sorrow seems to have fallen upon it to quench its song and leave it meditative and lonely. It seldom congregates in flocks of any considerable size, although two or three are as a rule in the same vicinity. In size this species is about the same as the common robin, from which it may be instantly distinguished, however, by the presence of a black crescent upon the breast, extending up the sides of the head. A conspicuous stripe of buffy yellow or brown above the eye is also a distinguishing mark. The throat and breast, except where black, are yellowish or orange brown in color, while the American robin is brick red or chestnut on the breast. The back of both species is slate or plumbeous in color.

The wren-tit does its best to atone for the meditative ways of the varied robin. Considerably less than half its size, it is, nevertheless, such a bustling little chatterbox that its presence is soon

made manifest to the attentive seeker after bird lore. Search the world over and you will not find its counterpart outside of California. He is a plain brown little fellow and as merry as a brownie ought to be in his cañon home.

While some of our winter birds are so sociably inclined that they come to our gardens, others must be sought in their retreats among the hills. Of this latter class is the wren-tit, and also, for the most part, Townsend's sparrow. Stepping into the dense undergrowth of the cañon some January morning we may hear a great scratching going on in the thicket. By standing quietly for a time and watching the spot intently we may be rewarded by a glimpse of this very interesting species. At first sight the general style of coloration reminds us of a thrush. The back is plain, dark, grayish brown, becoming more rufous in tone on the wings and tail, and the breast is white, spotted with triangular markings of brown. But the

build of the bird is as different from a thrush as can well be imagined. Note the stout beak, the thick-set, stocky legs, the compact shape of the body. See with what vigor it scratches away the dead leaves in search of food. It is a solitary bird during its winter sojourn in our southern latitudes, and never a very abundant species, although by no means rare. Occasionally it ventures into our Berkeley gardens and scratches about under the rose-bushes, but I fancy it is ill at ease here and anxious to be back in the sequestered cañon.

In the more open country, especially among the live-oaks, flocks of western bluebirds are not infrequently seen at this season. The male bird is a deep, intense, glossy blue upon the back, and a lighter blue upon the throat and belly. The breast and a patch upon the back are chestnut. In the female the brilliant blue is much subdued and replaced in part by brownish gray. The bluebirds

do not nest here and I have never heard their song, although their sweet call-note has a distinctive quality all its own and cannot be mistaken for that of any other species.

There is much to be seen among the hills during the clear days between rains. Then the ground-squirrels come out of their burrows and scamper near and far, with one weather-eye always turned to the red-tailed hawk sailing calmly but ominously overhead; the song-sparrow sings a few snatches of his modest song from the roadside thicket, and we may even have the good fortune to happen upon some of our rarer winter visitors, as, for example, Lewis' woodpecker or the evening grosbeak. It will be a red-letter day on our bird calendar when we discover either of these birds, for they only come here when driven from the mountains by extreme cold. At such times they may be present in numbers for a few days and then disappear for several years. Lewis' wood-

pecker is a large member of its tribe, and colored a dark, glossy, bottle-green. This general tone is varied by a crimson area around the bill and a gray collar on the back of the neck. The breast is ashy gray changing to dull crimson on the under parts, the whole effect of coloration being striking and unusual.

I have seen the evening grosbeak in Berkeley only twice during the past twelve years. On both occasions a good-sized flock was present, and the birds were so tame that I approached to within a few feet of them. They are even more unusual in coloration and general appearance than Lewis' woodpecker. The bill is immensely thickened and the whole effect of the bird is very thick-set and heavy. The general color is yellow, though mostly dull, in places changing to olive-brown or dusky. The top of the head, wings and tail are blackish, the wings being varied by a broad, conspicuous patch of white.

I have described but a few of our winter birds—enough, however, to show that our hills and plains are far from deserted during the month of January. Midwinter is a season of rain, but the birds rejoice with the rest of us in the bountiful soaking—in the new-sprung grass, the roar of the creek, and in the burst of light and life which follows the downpour. Then the air is cleansed until the far-off regions of the bay stand out in transparent blue, and the whole vast amphitheater of water and mountains lies before us so sharply outlined that the redwood trees upon the Coast Range thirty miles off across the bay are plainly visible. No more favorable time in the year could be chosen to seek out the birds, for the air is cool enough to make hill climbing a delight, and all nature is refreshed and happy.

FEBRUARY IN BERKELEY.

EASON of frost and sunshine, of chill rains and budding trees, of California's mild winter, mingling with the tempered air of spring — fair season of change and prophecy, when the grass grows fresh upon the hillside and the birds are once more inspired to song — I salute thee with reverence and delight!

In February the air is full of expectancy, and nature seems busy with mighty preparations for a new year of toil. The spiders come forth from their hiding-places and run nimbly over the land. The field-mice and wood-rats are at work in their runways amid the grass of the hillsides or the underbrush

of the cañons. The ground-squirrels emerge from their tunneled retreats to sport in the open fields. Earth and air are pregnant with new life, soon to be born in all the glory and splendor of spring

It is at such times that we are most forcibly reminded of the unceasing change that is ever in progress in nature. Each day brings forth something new, year in and year out. At times the transition is more or less rapid or conspicuous, but it never ceases. Like the waters of the ocean with their perpetual ebb and flow, so all that lives has its periods of rise and fall, and February marks the incoming tide of life.

During this month the birds of winter are still with us — the robins, the golden-crowned sparrows, the Oregon juncoes, the kinglets, and many others whose acquaintance we have still to make. So also are the resident species which were so abundant in January — the California

brown towhee, the white-crowned sparrows, Anna's hummer, and the wren-tit. In the meadows are large flocks of American pipits, the goldfinches throng the roadside, the California jays are squawking in the underbrush, and the plain-crested titmouse makes merry in the live-oaks.

The pipit or titlark, as it is also called, is a wanderer from the far north —a plainly clad bird of the size of a sparrow, eccentric in its motions, with the body teetering back and forth every now and then as the bird runs about on the ground in search of food. The plumage has everywhere something of a streaked effect, this being most marked on the under sides of the body. The back is a dull brown, and the breast pale buffy. Flocks of these birds may be seen in open meadows all winter long, uttering their restless titter of a note as they run about on the ground. At the advent of spring they are off in search of fresh fields and pastures new,

nesting in the high mountains and the far north.

Among our reliable birds who never desert us the year round, the little green-backed goldfinch has a tender place in my memory. It is a sociable, domestic body, frequenting the gardens and roadsides, now among the lofty tops of the eucalyptus trees, and again busily feeding amid the weeds or upon the ground. A member of the great sparrow family, with the characteristic thickened beak of the group, it is, nevertheless, quite unlike the birds which popularly go under the name of sparrows. In the first place it is decidedly smaller than its more familiar relatives. Moreover, its plumage is of rather unusual coloration for this family, olive-green on the back and golden yellow upon the breast, with a black cap to give it a more jaunty appearance.

At this season it is not in full plumage, the colors being subdued, in the female especially, to an olive-brown-

ish, with but a suggestion of its gaudy summer attire. When in full dress the wings and tail are black with conspicuous patches of white upon them; but we shall meet this little fellow again in the summer-time, when the air is mild, and his throat is bubbling over with song. At present he is not interested in love-making or anything else more romantic than getting a good living of dried seeds, and his note is only a high, plaintive titter.

While the green-backed goldfinch is confined exclusively to the western states, from the Rocky Mountains to the coast, it has two near relatives, also with us during the winter time, which are of more universal distribution — the American goldfinch and the pine-finch. The former, as its name implies, is found over the greater part of North America, but, while it is one of the most abundant of eastern birds, it is much restricted in distribution in California. About Berkeley it is found

only occasionally, when flocks pay us a passing visit. It is somewhat larger than the green-backed goldfinch, and habitually utters the plaintive note which has given it the Latin name, *Spinus tristis.* In summer its plumage is all golden except the head, wings and tail, which are black, but at this season the colors are changed to brown upon the back and dull whitish on the breast.

Especially interesting to me are the flocks of pine-finches which are now and then with us in the winter season. They are northern birds, nesting in the mountains and visiting us erratically during the winter months. I have generally found them in the tops of the alder trees in the cañons, chattering in a sprightly fashion, full of animation in their manners, and in general doing all in their power to atone for an exceptionally plain garb. Above and below they are streaked with white and brownish, varied with a touch of pale yellow on the edge of the wings, and

sometimes with a patch of the same on the upper tail-coverts.

Upon some mild day in February, when the willows are blossoming by the streams and the linnet has commenced his joyous song in anticipation of the love-making which the genial day suggests, let us walk over the hills and see what life is abroad. The wild currant has already hung its aromatic pink clusters of bloom where the spring breezes may sway them, and the rufous hummer, that tiny rover who left for the tropics in the autumn, has found them out. I hear his fine, high, penetrating, chattering note, so different from the familiar squeaking sound of Anna's hummer, which has been with us all winter. Looking among the blossoms I see this smallest of our birds busily at work, hovering over one blossom after another in its search for honey and insect life. It may be easily distinguished from its resident cousin by its smaller size and

by the general rufous coloring, both on the back and the side of the breast. The male bird has a throat-patch of coppery red, while the throat of Anna's hummer is of an amethyst hue. Although the rufous hummer is so easily distinguished from our larger resident species, it is practically impossible to tell it from Allen's hummer. The only infallible mark of distinction is the character of the tail-feathers. In the rufous hummer the two feathers next to the central one are broad and deeply nicked, these same feathers being plainly pointed in Allen's, hummer. The outermost pair in the latter species is extremely narrow, while in the former bird these feathers are fully double in width. In general the rufous coloring is less intense in Allen's hummer, and the bird is a trifle smaller in size.

As we pass the live-oaks, a party of California jays salute us with their merry squawking call, the blithesome Audubon's warbler, ever in motion and

ceaselessly uttering its short *tsip*, *tsip*, flits from spray to spray, and the big red-winged flicker flies hastily away at our approach. The shy, dwarf hermit-thrush, in its hues of brown, shrinks into the bushes with an occasional *chuck*, *chuck*, which gives no intimation of the glories of its summer song.

Only once during my rambles about Berkeley have I discovered the strange Townsend's flycatcher. It is a bird of the west, quite as unique among North American forms as the wren-tit or phainopepla. It is much like a fly-catcher in general appearance, but in structure quite as closely allied to the thrushes. It is rather larger than a sparrow in size, decidedly longer and more slender, and is colored a plain, slaty gray all over, becoming lighter upon the under parts of the body. It usually inhabits the mountains and is a rare, shy creature, very easily overlooked on account of its severe coloring.

Another bird which, although not rare during the winter, may very readily escape detection on account of its quiet manners and dress, is Hutton's vireo. It is a small bird about the size of a warbler, dull, olive-greenish upon the back and whitish on the breast, the sides being tinged with pale yellow. A dull white ring around the eye and its yellowish tone of coloration will serve to distinguish it from Cassin's vireo, another California member of the family.

Both in February and March the birds have a rather perplexing time in regulating their conduct according to the weather. At this season a hot spell occasionally visits us, and I fancy the puzzled state of mind of the varied robins, the Oregon juncoes, and the American pipits. It is not yet time by at least a month for migrating to begin, yet here is midsummer full upon us. Or again, the humming-birds have commenced nest building, when a long, pro-

tracted spell of rain follows the spring days. The nest is abandoned and the tiny builders seek shelter amid the dense cypress boughs, disconsolate at their misfortune. But spring is proverbially fickle and must be taken in good part, for its sunshine warms more quickly than its cloud can chill, and every day brings some measure of surprise and change.

MARCH IN THE PINE WOODS.

IT was my rare good fortune to spend an entire winter among the pines of Mendocino County; to see the autumn with its glory of golden oaks impalpably subside into the purple hues of winter, with blustering storms of rain and snow, and to see the gradual emergence of spring—fresh, jubilant and inspiring as in the eastern states. February was an uncertain month, but March was joyful with the glow of renewed life. The open glades were shimmering with the fresh, tender green of the new grass. The brooks, swollen with the winter rain and snow, were lifting their joyous voices to the moun-

tain tops that watched over them. The willows by the stream had put forth their downy catkins, and the hazel bushes were hanging their pendulous blooms beneath the pine trees.

What days of joy are these, when the tree-squirrels are barking and chuckling over their love-making, when the salmon are spawning in the mountain brooks, and the birds are crowding back to their old nesting places! One by one the spring flowers push their tender green shoots through the woodland mold — the hound's-tongue with its clusters of blue stars; the fair, pale, dog-toothed violet, and the trilium. The mountain-quail sounds its loud, restless, whistling titter from the highlands, the valley-quail crows below it, and away up among the pine trees a grouse is booming its love call.

To know these birds in the market, hung up with limp bodies and ruffled plumage, is a very different matter from an acquaintance with them in their

native haunts, breathing the same sweet air of the pine woods that they breathe, and feeling the same thrill of spring life. The mountain-quail habitually frequents higher levels than the valley-quail, although during the winter its range overlaps that of the latter species. It is a somewhat larger bird, with a long, slender, double plume, projecting backward from its head. Its back is brown, shaded with olive, the throat and under parts being chestnut, interrupted by a broad patch of bluish slaty color on the breast. On each side of the throat is a line of black bordered with another line of white, and upon the chestnut sides are black and wavy white bars, thus marking the bird in a very striking manner. Altogether it is a very showy species, with quick, active, alert manners, generally rather shy in its habits, and less abundant than its more familiar cousin of the valleys.

It seems almost superfluous to describe the valley-quail, so familiar to the

average Californian it has become, but a word of contrast may not be out of place in the present connection. Its most distinctive feature is its crest, formed by a series of beautiful, erect, black plumes, broadening at their terminals and giving the bird's head much the effect of a plumed helmet. When surprised or alarmed this showy appendage is thrown forward over the beak, but habitually it stands erect, trembling and quivering with the restless motions of the head as the bird runs hither and thither over the ground, in search of food. The general color is olive-brown and gray, while the throat is black, bordered all around with a rim of white. The neck is finely mottled with white, the breast is plumbeous, and the belly buff and chestnut, marked in a curious scaled pattern. The familiar call of this bird is a *cu cuck' cu*, the accented syllable pitched on a higher key than the other two. When suddenly startled from the covert, a flock of these birds

takes to wing through the brush with a loud whirring of wings and a promiscuous, high, chuckling call, but if the approach of danger is not too sudden they prefer to elude pursuit by running into the dense underbrush.

The dusky grouse is exclusively a bird of the pine woods, and although I have observed it to be quite tame in the high Sierras, it was rather shy and retiring in Mendocino County. Once during the late autumn I startled a flock of five or six of them in the dense woods, but during the winter months they entirely disappeared. In late February and in March, however, their curious booming was to be heard on every side, although the authors of the sound were extremely difficult to detect. The birds have a habit of alighting upon a pine limb close to the trunk, at a height of from twenty to fifty feet from the ground, in which situation it is well-nigh impossible to detect them, so dark is the shade of the foliage and so per-

fectly does their plumage blend with the tree trunks. Their booming, too, is as elusive as the will-o'-the-wisp. It may be described as a low, deep, muffled *boof*, *boof*, sounding first from one direction and then from another. The general color of the bird is mottled brown, grayer upon the breast and darker on the back, with a broad, dark band at the tip of the tail.

Other game birds there are in this Eel River country. Flocks of band-tailed pigeons were seen every now and then, while the swift-flying mourning-dove returned at the first intimation of spring. Long lines of wild geese in wedge-shaped files were flying overhead, and their noisy honking floated down from the far regions of the sky like voices from another world.

With the advent of spring came the turkey-buzzards, wheeling in easy gyrations from crest to crest of the rugged mountains. A silent shadow passes along the green hillside, and looking

up I see one of these great black creatures, with its outspread, fringed wings, serenely climbing upon the impalpable air in calm triumph at its mastery of the element. Oh, thou ugly, bald-headed harpy, banqueting upon the offal of life's charnel-house, thou hast only to launch upon the air to become sublime!

The red-tailed hawk is screaming in its ecstasy of love-making, and the meddlesome, blue-fronted jay has the audacity to imitate its cries. There are two distinct species of the jay family commonly found in California, one inhabiting the lowlands especially, and known as the California jay, and the other confined to the coniferous regions, called the blue-fronted jay. The latter is a larger and more showy bird, with a conspicuous crest, which is wanting in the lowland species. Its back and head are of a smoky black color, which gradually merges into a dull blue on the upper tail-coverts and on the breast.

The wings and tail are a brilliant blue barred with black, and a few streaks of the same mark the forehead. The California jay is smaller and less striking in its coloring. The under parts are dull white, streaked with blue on the sides of the throat, the back is blue, varied with gray in the center, while above the eye is a well-defined streak of white. Both species are noisy, inquisitive, and vivacious in manners. The note of the California jay may be described as a squawking laughter, while the blue-fronted jay calls a loud, rattling *kuck-kuck-kuck-kuck*, making the most hilarious clatter imaginable. Both species have a great variety of subordinate calls, the most interesting of which is the imitation by the latter bird of the cry of the red-tailed hawk. Just why the jay should have cultivated this call —whether for the purpose of protection, from mimetic instinct, or from pure love of mischief—I am unable to say, but certain it is, the imitation is so

perfect that the most experienced ear will oftentimes be deceived.

These mountainous pine forests are the home of a host of smaller birds. The barn and cliff swallows are once more in their old haunts after their winter's sojourn in the south, calling and chattering in high glee. Amid the pine branches are flocks of chickadees, incessantly in motion. Bands of Oregon snowbirds are flitting from bush to bush in more open places. The loud, sweet call of the robin rings out cheerily from the white oaks, which are now putting forth their first buds, and regularly as the sun wheels into the golden west the flocks of Brewer's blackbirds return from their foraging excursions in the valleys below. At first they assemble in small squads, flying directly to the top of a great dead pine tree that forms their evening rendezvous. As their numbers increase the melodious clamor of innumerable voices resounds through the twilight air. Finally, as of

one accord, they leave their perches, wheel back and forth through the air a number of times, and finally settle amid a patch of tules in an old pond. Suddenly all is silence. The pine tree grows blacker and blacker in silhouette against the saffron sky, the timid deer comes out in the open from the somber fringe of the forest, an owl hoots in the solitude, and before we are aware of it night is upon us.

APRIL IN BERKELEY.

THERE is an indescribable gladness among the fields and over the hills as the birds come hurrying and crowding back from their winter sojourn in the south, at the genial invitation of spring. The warm promptings of their hearts urge them to love-making, and the sacred duties of the nest once more engross their devoted little minds. It is at such times as this that we are most closely drawn to our feathered friends by ties of sympathetic feeling; for are they not enacting the same life drama that we enact, with their heart-burnings and jealousies, their unsatisfied longings and tender loves, their watchfulness and care of the young? There

is a beautiful solemnity about this season of new life, when numberless fair creatures are mating in bush and tree. Love is the ruling impulse of the hour, and patient care and devoted self-sacrifice prevail in nature's realm.

As April emerges in the procession of the seasons many changes are already in progress. The precious Anna's hummer fashioned its tiny basket at least a month before, and is now busy rearing its two helpless young. The summer warbler, in its raiment of gold, came flitting about our trees in mid March, during which month, also, a number of our winter birds departed for their breeding-ground in the north. The shy, dwarf hermit-thrush has stolen away like a fleeting shadow, and the kinglets have betaken themselves with all their light-heartedness to the pines of the north. But in their places have come the lark-finch and the swallows, the black-headed grosbeak and the warbling vireo.

On one of these fair April days, when the linnets are singing their loudest from the tree tops and the green-backed goldfinches, resplendent in their spring attire, are busy with their love-making, we may observe on some fence post by a country road the lark-finch, contentedly singing his humble ditty. He is a strikingly marked bird, with individual characteristics which enable the novice to distinguish him with but little difficulty from his fellows of the sparrow family. Probably the first peculiarity about him to attract the observer is the unusual pattern of the head-markings. A line of white extends from the bill down the back of the head, bounded on each side by a strip of chestnut or blackish, which in turn is bordered with another white streak, just above the eye. A fine line of black is next below this, while on the white throat is also a streak of black, less sharply defined, however. Thus the entire head has the effect of a succession of black and white

streaks, which, together with an irregular black spot on the breast and a series of white edgings on the tips of the dark tail-feathers, make this otherwise plain grayish brown and white bird very easily recognized.

There are to me none of the fond associations of former days about the lark-finch — none of the home ties to warm the heart when it returns — but when I hear the high, busy chatter of the swallows, and see them wheeling in clear-cut circles about the eaves where of old they have nested, an untold flood of memories and delights arises. Here they are — the barn and the cliff swallows — the same in this far land that a Wisconsin childhood had made dear to me. How swiftly and dexterously they cleave the air with their long, sharp wings, wheeling and eddying about, seemingly in pure delight of the motion. I have known estimable men and women in this workaday world of ours who had no clear conception of the difference

between a swallow and a sparrow. Alas for you, my good friends; what a joy has been absent from your lives; what a lack in not being able to claim kinship with these masters of the air! I shall not detain you with a description which would fall so far short of the living image, but simply bid you go to the country when next the spring air gives assurance that the swallows have come, and make their acquaintance about any farmhouse; and, by all means, learn to distinguish the barn-swallow, with his long, forked tail, for he is so much of an aristocrat you cannot fail to appreciate him.

The tiny rufous hummer does not mate so early in the season as its resident cousin, Anna's hummer, but by the first of April it is paired and at work upon the nest, which is truly a marvel of a home, so delicate and downy, so deftly constructed and so perfectly concealed. To detect the nest by a scrutiny of the bush or tree in which it

is placed would be a hopeless task, so minute is its size and so perfectly does it blend with the branch upon which it is placed, but the anxiety of the birds when their home is approached, or more frequently their daring resentment, reveals its presence. Whenever the angry buzz of one of these intrepid mites is heard close at hand, it is safe to surmise that the nest is not far off. Even then it is not easy to discover it, but with patience and quiet the owners may be sufficiently reassured to go about their business once more. Watch them closely and the female will presently be detected suddenly alighting upon what appears to be nothing more than a knob or excrescence on a branch.

If you have the good fortune to have discovered an unfinished nest, you may observe the mother bird's methods of work. She settles down upon it and rounds it with her breast. Seemingly with difficulty the head is raised and the long, slender beak arranges here and

there a bit of lichen, bark or cobweb in its proper place on the outside. Thus she works until the compact little structure of softest thistle-down, covered on the outside with small fragments of moss, lichen, bark and similar materials, is ready to receive the invariable two white eggs. In due course of time the most helpless young imaginable are hatched, to be tended with unremitting care. They soon grow so large that their diminutive home can scarcely contain them until, at last, from the sheer physical necessity of overcrowded quarters, they are forced to essay a flight. Wonderful, indeed, is the domestic life of these smallest of birds, in whose minute frame is compacted so much of intelligence and passion — so much that we fondly claim as human.

Upon some fine morning in early April we may hear a sprightly warbling song which gives notice of the arrival of a new comer. Looking among the delicate spring foliage we may soon detect a

lithe, delicate, active little bird in extremely sober attire, gleaning among the trees for whatever insect life the new leaves harbor. It is a western warbling vireo, a slender creature with fine sensibilities, I should imagine, modest and retiring, uttering its sweet warble as it flits among the branches. Its cloak is of olive-green and gray above, and yellowish white below, with a faint, scarcely perceptible line of white over the eye. Despite its dull colors I am especially fond of this little vireo for its winning ways and gentle disposition. Our California variety is to be distinguished from its eastern counterpart by the most trivial differences only, being slightly smaller and paler in color. The song is the same—a sweet, liquid warble, which may be heard at any time during the early months of summer. The call-note of the vireo is low, harsh and peevish in quality, very different from the sprightly song. As it flies it occasionally utters a short *check!* Although

not very active, this species is rather calmly but constantly in motion. It has a characteristic habit of reaching up to a leaf above its head while searching for food.

Would that I could describe the host of birds that are on the move in this month of restlessness and activity! The golden-crowned sparrows which lingered as long as they dared have deserted us, and left their near relatives and companions of the winter time, the white crowns, in undisputed possession of the shrubbery. The Oregon junco, or snowbird, has likewise gone north or into the mountains, and the Audubon's warbler has followed it. From the southward has come the demure little western flycatcher to spend the summer in our cañons, and following it is the chipping sparrow, the gay Bullock's oriole and the lazuli-bunting. How the season changes! Some birds are hurrying to the north, some are already busy with their nesting, while others are on

their way from the south. The grass which covers the bare face of the hills is shimmering green. The flowers are blooming in bountiful profusion. The occasional frosts of the early part of the month have succumbed to the genial warmth of the sun, and the rains have grown less and less frequent. We are at the gates of summer, and as the month draws to a close the birds become more and more settled into the routine of domestic life. Courtship, wedded life, the home, the young, the education of offspring and the parting —all in the space of two or three summer months! Verily the birds, with their intense activity and ardent passions, lead faster lives than we, who watch them, can realize. Thus engaged in the preparations for house building, let us leave them, trusting in another month to arrive at the heart of their domestic tribulations and felicities.

BERKELEY IN MAY.

OW happy are the birds in the glad month of May! Here in Berkeley on the slope of the hills the sun is warm and full of the cheer of summer; and the birds are in the midst of their courtship and nesting. What a plastering of mud nests there is among the swallows! what a search for eligible sites for homes among the merry wrens and the blithesome linnets! what a fashioning of dainty little nests by the humming-birds! The bush-tit has swung her marvelous purse of lichens among the live-oaks, and the goldfinch has tucked her soft little basket in an apple bough. All are happy and busy with the promise of the spring.

As I walk through the fields and over the hills I am greeted with a multitude of songs that make the air glad with their cheer. From a post by the side of the half-grown patch of grain a meadow-lark tunes his mellow pipe and gives forth tones of such a varied, flute-like quality that it sounds like the piping of some inspired pastoral shepherd who knows his love is near. There he sits in his streaked coat of brown, with vest of gay yellow and crescent of black upon his breast, singing to his demure little dame upon her nest.

It is not an easy nest to discover in a field of grain, so deftly is it concealed, but once found is well worth all the pains bestowed upon its detection. It is a dome-shaped structure, woven of fine grasses, and contains some four or five white eggs, rather thickly sprinkled with reddish-brown dots. Happy is he who can find such a prize as this, and, after admiring the beauty and poetry of the life it reveals, go his way in

peace, contented to have seen without coveting!

The song of the linnet is ever in the air during May. I know of no bird which, if its song be a true guide, has a lighter and more exuberant heart. There is much of the freedom and nonchalance of unrestrained delight in its tones as it pours forth a flood of impassioned song in the midst of its flight.

The linnet, or house finch, as it is called in the books, is doubtless the most abundant bird found in these parts of California. The bright red or crimson of the head, throat and tail-coverts make the full-plumaged male a very showy fellow, although his mate is content with a quaker garb of streaked gray. He is accused by the fruit-growers of being something of a mischief-maker when cherries are ripe, but let that be for the present. It is May, now, and the cherries are too small and green to be palatable. The linnets are quite content with a diet of seeds, while the

office of parent is the all-engrossing subject of interest. The males are persistent suitors, and I have often seen two of them paying assiduous attention to the same female, singing and displaying their charms of plumage, while the indifferent object of their rivalry would fly about from tree to tree in a vain attempt to escape. The coquetry of linnet nature would ultimately soften in favor of one of her admirers, however, and the defeated one would fly off, nothing daunted, to display his gallantry in more promising fields. Thus do we see the drama of life enacted upon the mimic stage of the bird world.

Down through the cañons which furrow the side of the Berkeley hills wend clear, silver streams of mountain water, hurrying on their way to the sea. Let us take our way during the heat of the noon from the grassy hillside into the cool shade of one of these retreats, beside the babbling stream that is making perpetual music in the springtime.

Here the live-oaks spread their branching limbs over the land, and close by the water's edge the willows and alders sway to the gentle influence of the salt breezes that have come through the Golden Gate.

An emphatic little *pee wit* greets us as we enter the quiet of the cañon, where the breeze sings in an undertone and the silver-tongued brook sounds in a subdued murmur. Looking about for the humble musician who does his best to enliven the scene with his apology for a song, we see, perched upon a bush, a quiet little bird with large eyes and a broad beak edged with bristles. His plumage is a dull olive on the back, brownish or greenish in tone, with a dull white breast tinged with pale sulphur-yellow. There he sits upon the bush, flirting his tail emphatically at every utterance of the *pee wit*, and snapping viciously at any stray insect that approaches too near. Our new acquaintance is the western flycatcher, and a

very pleasant little fellow he is to know, with his old-fashioned ways and simple, quiet life by the stream. His mate, I suspect, has hidden her mossy nest in some little niche in the clay bank of the cañon, among the roots of some old tree, perhaps, for I have often found it in such situations; and I dare say she is setting upon five delicate white eggs, thickly speckled with brown, for such is the habit with these little folk; and, furthermore, I think there is no doubt that she listens to the *pee wit* of her lord and master with all the pride and delight of a dutiful wife and a proud mother. Here indeed do we find that life of rural simplicity for which we have so often sighed in vain!

The western flycatcher does not have the cañons all to himself these heydays in May. Snugly tucked away in a hole in a rotten live-oak a pair of Vigor's wrens have made their home. Higher up in another oak, where a limb has broken off, and the water has trickled into

the heart of the tree, leaving a small cavity, a plain crested titmouse, dressed in her lead-colored attire, is tending her numerous brood of young. Away off among the bay trees that nestle in the upper part of the cañon a clamorous California jay is squawking in a harsh but altogether good-natured sort of a way. Even he — noisy vagabond that he is — knows the joy and sorrow of having a home and family on his hands, though I fancy the cares do not weigh very heavily upon him in the daily routine of his plundering, rollicking life. Samuel's song-sparrow, too, has found a place for her nest in the cañon, in a wild tangle of blackberry vines at one side of the road; but the crowning glory of nest architecture is concealed in the all-including limbs of the live-oak. It is the home of the California bush-tit, the tiniest of all birds except the hummers. A plain, mouse-colored little fellow is the bush-tit, with a blithe, high-pitched lisp of a note, his wee

body ever in motion and his tiny heart ever in good cheer. He is a sociable midget, generally traveling in bands of fifteen or twenty, from one live-oak to another, gleaning among the leaves for insects.

But there are birds more splendid far than the quiet life of domestic simplicity into which we have thus far had a glimpse, would lead us to suspect. Bullock's oriole, that gay wanderer from the tropics, is sounding his loud, clear song from the tree tops; the black-headed grosbeak is making music to the best of his ability in the orchard and grove, and lo! the thrush is in the full glory of his song.

The plumage of the male oriole is, in the main, black and orange with conspicuous bars of white on the wing. The back, top of head and throat-patch are black, leaving the rest of the body varying from yellow to intense orange and red. He is a beautiful bird, as from the top of a maple or elm he

sounds his loud, wild, yet sweet, call to cheer the more modestly attired mate, who from her basket cradle high up in the weeping willow broods over her treasures and dreams of the happy family that will soon be hers—alas, for how brief a time!

The black-headed grosbeak is a far less graceful bird than the exquisite oriole. As the full-plumaged male flaps through the air his conspicuous markings of white, black and yellow appear to me somewhat overdone and flashy. From his heavy beak down he seems rather gross, although I do not find him any the less interesting on this account. His song, too, is not wild, spontaneous and buoyant like the oriole's, although loud and sweet, but seems rather perfunctory and monotonous in its range. Even his nest will not stand comparison with the delicate, deftly woven, pensile basket of the oriole, for it is loosely built of sticks—so loosely built, in fact, that the eggs may frequently be

seen through the bottom from the ground. The four eggs are of a dull, greenish-blue color, heavily spotted with brown. In spite of his unwieldly appearance and uninspiring song, I should feel a sad lack in our summer days should this happy fellow be removed. When other songsters are silent he still sings in his loud, warbling strains, troubled little by the heat of the day; and if his plumage be not so fastidiously elegant as the oriole's, it is, nevertheless, showy and gay.

At sunset the cicada is sounding his high, palpitating love call from the meadow, when suddenly, out of the sacred calm of evening, full and rich and varied as the tones of an organ, swells the song of a thrush. The most inspired singer of all, with his rich, gurgling fulness of rapturous sound, has waited until all the lesser minstrels have done their part in the day's chorus, and now, from his bush in the thicket, as the shadows darken around him, he

becomes infused with the subtle delight of the sunset sky, the sweet odors of the evening and the cool air of the night. "*Qui, qui, qui, quia, quia, quia,*" he sings, with his little throat shaking and trembling with the resonant quality of the sound. Well can he afford to be clad in olive and brown, relieved only by the white speckled breast, with such wealth of song at his command! His whole composition is too delicately attuned to admit of showy colors. Notice his large, bright eye, his long, slender legs and delicate beak, his half-calm, half-timid manners as he stands upon a twig in the obscurity of the foliage. He is a creature apart from the vulgar throng that surround him, and the exclusiveness of his hours of song show that he is not unconscious of his superiority.

As the month of May advances, the landscape assumes more and more the typical aspect of summer. The rains have ceased for the season and already

the well-traveled roads in the country are growing dusty.

From a bush by the road a vivacious, high-pitched song issues. It is intricate, rapid and varied. At times we catch such hastily uttered phrases as the following: "*Tit-a-trea-trea-trea; tree, tree, trea, tree, tree; trit-a-tree, tree, tree;*" but the ending of the song is frequently lost in a confused jumble of sweet tones. If we are patient we may detect a small, blue bird, considerably less than a sparrow in size, with restless, animated movements to correspond with his song. It is the lazuli-bunting, one of the commonest of the minor songsters of summer. The plumage of the male is very gay, with the back of azure and the breast of reddish brown; but the female, like so many of her sisters, is rather obscurely robed in brown, with but a trace of the bright colors of her mate. Their nest is a cup-shaped structure of grasses, in which are deposited four or five pale blue eggs,

generally unspotted, although occasionally slightly dotted with points of brown.

Continuing our walk, a flash of gold crosses the road and disappears among the thick growth of bushes. Thither let us follow, where the summer warbler is singing his high, vivacious crescendo of song in a sudden outburst of joy. A little, sharp, fine, metallic *tsit* arrests our attention as we pass through a clump of scrub oaks. It is well to pause when a new note greets the ear in the course of a woodland ramble, and, with eyes alert, await developments; for the birds are always ready to display themselves to the unobtrusive observer. A little, brown, perky bird soon flirts into view and greets us with a low, harsh, rasping chatter, which at times changes to a more guttural tone. We soon recognize our old friend, the western house wren, which is at home both in the woodland and in our village gardens.

Full of the beauty and wonder of the life we have seen, we wend our way

homeward, cheered by the exhilaration of the oriole's song. *Chuck*, *chuck-a-choo*, *chuck*, *chuck*, *chuck*, *chuck*, he sings in a rapid, vivacious strain as the wind rocks him to and fro on his perch at the top of a madroño tree. We betake ourselves to the dusty road, where a snake has left its track as it journeyed over the land, and where the dainty print of the quail's foot tells of the band that but late hurried into the bushes.

Thus passes the month of May among the birds. Their lives are not, as many suppose, utterly irresponsible and free from care, but, on the contrary, ever varied and ever altering—influenced by every change of season, hurried on by every new impulse of their being, guided by that destiny in which their own wills play but a minor part. May is the time when the species is to be perpetuated, if at all, so the whole energy of the bird nature is directed to that end. It is a wearisome ordeal for

the mother, but a happy one, nevertheless, for life means more to the palpitating spirit at such times, and the bird is exalted to a nearer kinship with man. There is the delight of house building, the conjugal felicity of the mated pair, the pride of the mother and the sweet solicitude of the father, the pangs of disappointment, the wearisome doubts and cares of rearing the young, the training for the flight; and then, when all is done, the sundering of tender ties — the parting of mother and offspring. Each goes its way to fight the stern battle of existence, following the dictates of its own nature, and doing what little it can to make the world a more beautiful and a more intense reality.

SUMMER BIRDS OF THE REDWOODS.

AMONG the coast valleys and lower mountain ranges of northern California flourishes the peerless redwood tree, second only to the big trees of the Sierra Nevada valleys. In the more northern portions of its range it grows in vast forests, but in Sonoma County, and thence southward to San Francisco Bay, and below, its domain is invaded by the oaks, madroño, manzanita and chaparral. In this region during the midsummer season, when the fog hangs in an almost perpetual curtain over San Francisco Bay and the land adjacent to it, it is a delight to slip away among the secluded redwood groves and see what

the birds are about — to lie in the dark shade of foliage and watch the play of life in the branches overhead — to stand by the stream where a mother sandpiper is leading her nimble young along the pebbled shore, and where the trout flashes in the silver stream as the kingfisher, with ominous rattle, flies overhead. Here all is beautiful! The sunlight filtering through the tracery of drooping boughs is transmuted to a flaming rose color, glowing amid the cool greens and the purple shadows that invest it.

High up in the top of a dead limb a California woodpecker is cheerily rapping away, while a pine squirrel scampers gaily up the trunk, chattering shrilly as he frisks over the rough bark. We catch the infection of joyousness from the light-hearted creatures, and feel that we have come to participate in a summer revelry. From a mass of poison oak in a little ravine below, a jack-rabbit, with long, erect ears, bounds

over the open mountain side into the nearest covert. A gray squirrel whisks his beautiful, long tail at us as we pass, and barks as if he had a bone in his throat. Far and near the birds are busy in the happy toil of rearing a family; and many of their human cousins could learn a lesson from their devotion and discipline.

Let us roam the winding trails together with great caution, for a careless step or the snapping of a twig will make a solitude where an instant before was a medley of animated life. One of the first notes to attract our attention in these vast forest halls is the high, nervous chattering of a band of chickadees, and we find no difficulty in gaining a very close view of the restless little birds, clinging head downward to the redwood sprays more than half the time, alert and animated, continually uttering their song, and acting as if the whole forest were theirs. Their note may be best described as a fine, tittering

siss, in the rhythm of *chick-a-de-de-de.* The red-backed chickadee of California is a somewhat more showy bird than its eastern quaker cousin, with its cap of brownish black, its coat and vest of chestnut red, its black cravat and immaculate shirt front. It is a happy, companionable, little fellow, chattering to its family light-heartedly amid the illimitable wastes of the forest.

The western house wren is another familiar friend of our redwood rambles. With the exception of a shade of difference in the color, it is the same blithe bird that builds in countless wren boxes and nooks about gardens and farmyards throughout the eastern states. Here it does not penetrate the redwood fastnesses as does the chickadee, but prefers the edges of the forest, singing its merry song amid the tangled shrubbery. The harsh clatter of one of these birds attracts us to a blackberry bush, where the busy little fellow is bustling and bobbing about with erect tail and quiv-

ering wings. Remain quiet for a moment and his loud chatter subsides to a low crooning, as he flits about the dead underbrush, picking up a stray insect here and there on the bark, and occasionally breaking out into his liquid, melodious, happy-go-lucky song. Near at hand the blue-fronted jay is sounding his succession of loud, short, slightly harsh notes, occasionally varied by a harsh, peevish, emphatic squaāk. Impudent fellow that he is, with his elegant plumage and beautiful crest, he may well feel his independence in these far-reaching forests of primeval grandeur, where the dainty hoof-print of the deer is more familiar than the step of man.

Here also, for the first time, I discovered the pine-finch in its native home. I was first attracted by a curious little attempt at a song which I imagined was the work of a young goldfinch that had not yet learned the lesson. It was so poor an apology for bird music, and yet so earnest, as to be almost grotesque.

A short search in the redwoods revealed the singer, which proved to be a male pine-finch pouring forth his love song. To the ears of his devoted spouse it was, no doubt, sweeter far than the melodious tones of the thrush, and so, I trust, it served every purpose in sweetening these two fair lives.

Perhaps the most interesting of our redwood birds are the woodpeckers. Their lives are so completely apart from the rest of the bird world that they seem to dwell in a realm of their own. They are inhabitants of the bark of the trees, and from morning to night devote themselves to exploring its every cranny and crevice. Note their strong spear beaks; their stiff pointed tails with which to brace themselves against the tree trunk; their toes, two in front and two behind, to give them a firmer hold in climbing; their thin necks, and bright, alert eyes. What a wonderful adaptation of structure to environment! With sharp, nervous, decisive blows the wood-

pecker hammers the bark to which he clings. Soon the insect for which he has been probing is dislodged. Quick as a flash the long, slender tongue, which is tucked away as far around as the back of the head, is darted out, and the unlucky grub is impaled upon the barbed tip.

There is one of our woodpeckers, and this the commonest species found among our redwoods, which has become famous the world over on account of its curious habit of storing acorns in the trunks of trees. A dead redwood is the favorite receptacle for its store, and I have seen trees of this sort as completely riddled from top to bottom with acorn holes as if filled with a charge of grape shot. When the acorns are in proper condition, the birds will bore holes in the redwoods selected for the purpose, and flying off to the oak trees, return with an acorn of just sufficient size to be firmly lodged in the receptacle prepared. In this manner an

entire tree may be filled, but for what purpose observers do not seem to have determined fully. The general opinion is that acorns will in time rot and accumulate insects, thus furnishing a ready food supply for these far-seeing providers. It is, nevertheless, difficult to understand why this particular species, living as it does in a land of unremitting plenty, should have developed this habit, while other woodpeckers in more rigorous climates neglect to make similar provision for the future.

This interesting bird should be more generally known, as it is so conspicuous in its dress and habits, so generally distributed and abundant throughout the State of California, and so famous among scientists for its singular habit. Its head is surmounted with a cap of flaming scarlet. Its back is a dark, glossy blue-black, the same color appearing on the breast also. Its under parts, with the above exception, are white, tinged with sulphur yellow, while

patches of pure white appear on the wings and rump. The note of the California woodpecker is a loud *ka-rac'-ka*, *ka-rac'-ka*, *ka-rac'-ka*, although its most familiar call is the resonant rapping on the dead limb, which may be heard at a surprisingly long distance in the forest silence.

Other woodpeckers there are in these far-reaching wildernesses of forest land — the great log-cock, with one exception the largest American representative of his family, the more humbly attired Harris' woodpecker, adorned with only a dash of scarlet on the back of his head, and otherwise black and white; and at times the little Gairdner's woodpecker, his counterpart in miniature.

There is another bird which, if we are attentive in our redwood rambles, we shall be sure to meet, which in habits is somewhat like a woodpecker, although the little fellow is not more than half the size of the smallest of that tribe.

Its manners are much less animated as it quietly creeps about the great redwood trunks, uttering a low, faint, lisping monosyllable. It is the western brown creeper, a bird more nearly related to the kinglets and wrens than to the woodpeckers, despite its habit of climbing about the bark. Its bill is too curved and slender for boring holes, so the little fellow contents himself with such insect food as he can pick up in the crevices of the bark. A sharp eye is necessary to detect this pygmy of a bird, as its back is streaked with brown and gray in perfect harmony with the tree trunk. So perfectly do its colors blend with its surroundings that I have sometimes been unable to distinguish the bird when looking directly at it, at the distance of a few yards.

Of all the California birds, the western tanager is perhaps the most brilliant. It is a quiet, retiring species, although not especially shy, and even ventures out of the seclusion of the forest, at

times, to sun itself on some adjacent fence post. The full plumaged male is golden in color, with a scarlet head and black wings and tail. There is something wonderfully beautiful about this quiet, unassuming bird, so richly endowed by nature, and yet so indifferent to its charms as to conceal them in the seclusion of the limitless forest, like some rare shell in the depths of the sea.

We have found the robin flocking in the hills about Berkeley during the winter months, but here in the redwoods he finds his summer home. In the shade of the mighty trees he lives a happy, independent life, building his nest of mud and straw to contain those lovely eggs which have given the name to a shade of blue. Hear his loud, free, piping trill from the top of a young redwood tree! Anon he comes to the ground and stands eying us, pausing with head erect and wings slightly drooping. We note his fine, upright bearing, his open-hearted, whole-souled

manner. Now he hops with quick, vigorous movements, gives a sudden peck or two in the ground and swiftly flies off to a tree. The young are here in the woodland shade, and their motley coats are a surprise after the trim attire of the parents. The slate of the back is thickly sprinkled with white and their breasts are spotted with dusky. We need not be surprised after seeing them to learn that our robin is a thrush, and that in by-gone days he was marked very much like the other members of his family.

Three flycatchers nest in the redwoods, and their call-notes may be heard here as well as about Berkeley all summer long. They are the olive-sided flycatcher, the western wood pewee, and the western flycatcher. All are very plainly colored and all cry out some modification of *pee wee*, but they do it so differently that their notes are unmistakable. The olive-sided flycatcher, the largest of the three, calls in a loud, deliberate voice, *pee' hew*, a note

that may be heard in the woods on hot summer days when other birds are silent. The wood pewee sounds a sad, prolonged *pee wee*, and the little western flycatcher calls out in a fine, nervous, high-pitched voice, *pe' it*.

Among the other redwood birds the exquisite violet-green swallow is of especial interest. Its back is beautifully varied with soft, rich, velvety green and purple, and its breast is pure white. It nests in holes in the live-oaks on the edge of the redwood forests, and is charming both in its beauty of plumage and grace of manner. The western purple martin, a large, glossy black swallow, is also found in some parts of the redwood region. Where the redwoods grow up into the mountains we may also find the water ouzel, that wonderful little slate-colored perching bird which delights in the mountain streams, splashing in and even under the cold, sparkling water, with as little concern as a duckling.

Evening brings its own wonders, when the bats fly mysteriously out of the gloom and the chimney-swifts, with fluttering, cork-screw flight, come winging above us with their chattering calls. We stand in the solemn twilight with the gigantic primeval trees looming above us, the shadows deepening beneath, and the breath of the night whispering far overhead, almost oppressed by the sacred beauty, the awful calm, of one of nature's holiest temples.

NESTING TIME.

IN the course of our excursions among the birds we have had occasion to peer into more than one little sylvan home, lifting the leaves of privacy which embower it, for a friendly inspection. Let us now take a general survey of these wonderful little architects at their work, and of the treasures which their nests contain. It is a popular impression that the nest of a bird is the result of blind instinct, constructed without the exercise of any considerable degree of choice or intelligence. However, no one who has ever watched the parent birds at their work would be willing to accept such a view, I am sure. The scrutiny with which the builders

inspect every available site, the judgment used in placing the nest where it will escape detection, the complexity of the work, all precludes the possibility of instinct playing a very important part in the matter.

But why, then, do you ask, is the oriole's nest always swung from a slender bough, while the home of the meadow-lark is invariably upon the ground? Professor Alfred Russell Wallace has suggested the answer to this, substantially as follows: For the same reason that the Esquimaux builds a dome-shaped hut of ice blocks, and the South Sea Islander a shelter of thatched straw; that the inhabitants of Mexico use adobe and tiled roofs, while the people of Switzerland build chalets. It is an adherence to such habits of architecture as developed most naturally in conformity with the customs of the people. Birds which find their food chiefly on the ground naturally nest in such places, and build their nests of such material as

lies nearest to bill — grasses and bits of straw. The woodpeckers, which get their living from the bark of the trees, simply peck a deeper cavity in which to rear their young.

Then, too, the young birds get their first impressions of life from the nest, and first impressions are always lasting ones. No doubt they remember much of their childhood surroundings, and when the responsibilities of life are thrust upon them they try to repeat what they recall of their own youth. In support of this idea it is found that in cases of nests known to have been built by inexperienced birds, the work was very imperfectly done. It is also well known that many birds have accommodated themselves to new conditions of life, and in taking up their abodes in the vicinity of man have changed their nesting habits to a greater or less degree. For instance, the familiar chipping sparrow seldom lines her nest with anything but long horse hairs,

although before the introduction of horses the short hairs of the larger wild mammals served the same purpose.

Another interesting example of a change, due to the advent of civilization, in nesting habits of a bird is that of the chimney-swift of the eastern states. This species habitually nests in chimneys not in use, fastening its cup of sticks to the sides of the brick flume by means of its gummy saliva. Vaux's swift, a very closely related species found upon the Pacific Coast, has apparently not adopted this improvement, and still builds its home in the good old-fashioned way within a hollow tree. The cliff-swallows, as their name implies, originally nested upon the face of rocky cliffs, but they find the eaves of our barns a very acceptable substitute and nest in such places in great numbers. In the eastern states the white-breasted swallow habitually nests in bird boxes in the country and in towns, but the beautiful violet-green swallow of the

Pacific Coast still contents itself with the primitive nest in a hollow in an oak tree. I might continue at great length to cite cases of birds which have changed their nesting habits, but the examples given are enough to enforce the point. We must therefore look at the birds as genuine architects who work with an intelligent idea of making a home for themselves. We find that their first thought is necessarily of safety, but the loving pains bestowed by the bush-tit and the oriole upon their beautiful homes surely implies a sense of beauty as well as of utility. I cannot but feel, however, that instinct, developed by the habit of generations, plays a part in directing the building of the nests, at least to the extent of impelling the birds to their task.

The color of the egg seems to be largely determined by the need for protection. We notice that as a general rule birds that nest in the dark lay white eggs, and that the more exposed

the nest the more perfectly are the eggs protected in their markings. To be sure, there are exceptions to this as to most rules, but think of the woodpeckers and owls. Here are large groups which generally nest in holes in trees and which lay spotless white eggs. On the other hand, many of the sparrows, whose nests are exposed on the ground or in the low bushes, lay green eggs with brown dots upon them. Nothing could blend more perfectly with the green grass or foliage than this, and many a brood of young has been saved from bright-eyed prowlers by the harmonious coloring of the eggs with their surroundings.

Singular as it may appear, among the earliest birds to begin nest building about Berkeley is Anna's hummingbird. Instances are on record of nests containing eggs in January and February, but this, of course, is very unusual. Early in March, however, the birds regularly commence work upon their

wonderful little homes. The cypress is a favorite tree in which to build, although I have found their nests in many other trees and occasionally even in tall bushes. The cradle is built with infinite pains out of feathery seeds, bits of bark or shreds of silk from cocoons, fastened together with cobwebs and with a soft felt lining of milkweed seeds or similar material. Upon the outside are placed bits of green moss and lichens, making the nest, when completed, practically invisible even when in full view. Both parents labor upon the home, making innumerable visits to the spot with the bits of fuzzy material that are so skilfully used in its construction. Two white eggs are presently laid in the nest and tended with anxious care. When the young are hatched the little mites just fill the basket, and, as they grow, the pliable walls are stretched to contain them. It is a pretty sight, this of the mother hummer with her two tiny babies, and

one worth much patient observation to see.

Allen's humming-bird comes from the south during the warm spring days of February, and commences nest building during the latter part of March or early in April. Operations are frequently retarded by the late spring storms, and sometimes the young birds perish from exposure to the rain. An unfinished nest which I recently examined had been abandoned under rather unusual circumstances. For many years a pair of these little creatures had nested in a New Zealand pine, protected from all intruders by the sharp, stiff needles of the tree. They had again commenced their nest in this favored retreat when the mother bird, in shaping her basket with her body, evidently felt one of the sharp spines pricking her breast through the bottom of her cradle. It was quite evident that the little ones would be killed, if, indeed, the eggs were not punctured by the

thorn; so the birds were compelled to abandon their work and commence anew. Both species of humming-birds evidently raise two broods in a season, as fresh eggs are often found as late as the first week of June. Think of the vitality of the little Allen's hummer, one of the tiniest of North American birds, to fly from Central America or Mexico to northern California, build its nest and rear two broods of young, all in the short space of five months!

Another tiny breeder of March is the California bush-tit, which begins the construction of its elaborate, pendulous nest early in the month. The eggs are plain white, delicately flushed with pink when fresh, and often number as many as eight or nine.

The plain titmouse, another resident species, commences nest building late in March or early in April. It is a very common bird among the live-oaks and has a sweet, high-pitched, vivacious

little song which is a characteristic strain during the early springtime, ranking well among the performances of our minor and more obscure songsters. Its usual call-note is somewhat after the style of the chickadee. Its nest is made in a hollow tree or in a deserted flicker's hole, where it lays from six to nine white eggs sprinkled with reddish brown dots. The plain titmouse may be readily recognized by his excessively severe quaker dress of gray, combined with his topknot and his lively manners, bobbing about on bark or spray, head up or down, pecking away at rotten limbs in search of insects and leading a bustling life generally.

The birds of prey are the only other species which begin nest building during the month of March. By far the commonest of these about Berkeley is the western red-tailed hawk, whick may be seen at almost any time sailing in easy circles above our hill crests. He is a most useful bird to the farmer, feeding

chiefly upon ground-squirrels and the larger insects, and well merits protection instead of the persecution to which he is subjected. His call-note during the breeding season is a loud, emphatic *pee' eee*, uttered upon the wing and frequently accented by a great, downward swoop. The nest is built chiefly of sticks placed in the rain-washed holes or scoops in the faces of rocky cliffs, or in the top of a live-oak or occasionally of a pine tree. The eggs are pale buff in color, generally rather faintly spotted with brown.

The prairie-falcon, a medium-sized, swift-flying hawk, dull brown above and white below, spotted and barred with brown, nested, in former years, about Berkeley, but I have never observed its nesting habits myself except in the vicinity of Mount Diablo. Its note is a loud, plaintiff call which may be represented by the syllables *ka-wie'-e*, *ka-wie'-e*, *ka-wie'-e*. This was sometimes varied to *ke'-ie*, *ke'-ie*, *ke'-ie*, with the

first syllable long drawn out. At other times an entirely different cry was heard, uttered very rapidly, thus: *a-chick'-wa, chick'-wa, chick'*. The two or three eggs laid by this species are white, heavily marked and blotched with brown. When I observed them at Mount Diablo, in the month of July, the old birds were carrying food to their young among the rocky cliffs. It was probably the second brood of the year.

The turkey-buzzards nest upon rocky cliffs about Mount Diablo, and the western great-horned owl breeds there among the trees, both species laying their first set of eggs in March. During the same month the barn-owl is busy with nesting cares, occupying, for the purpose, a corner in a deserted or little used barn.

Early in April the butcher-bird and jay build their nests and commence setting upon their eggs. Next follow the smaller raptorial birds, the screech-owl in her snug hollow in an oak tree,

the burrowing owl in her tunnel appropriated from a ground-squirrel, and the sparrow-hawk in a deserted flicker's nest or similar retreat.

The eighth or tenth of the month has now been reached and the green-backed goldfinch and Samuel's song-sparrow have begun nest building, or even, if the season be favorable, laid an egg or two. During the first half of April few other species commence their family labors, so that at this season the list of breeding birds includes all the hawks and owls (the smaller ones just starting, the larger, for the most part, well advanced in their nesting duties), the bush-tit and plain-crested titmouse, the three species of humming-birds, the jay, shrike, song-sparrow and goldfinch, the last two named having barely commenced their tasks.

By the middle of the month, or shortly after, our list is extended by several new species. Brewer's black-birds, which have been holding meetings

in the top of some convenient cypress tree, bowing, bobbing and scraping before the objects of their devotion, have settled down to housekeeping, and have made their bulky nests either in a tall pine or cypress tree, or, perhaps, in some low bushes in a swampy patch. Their four or five eggs are dull greenish in color, usually heavily spotted and blotched with brown.

The male bird is a wonderfully fine fellow in his superb black attire, which shimmers with iridescent reflections of purple, blue and green. The white or pale straw color of the eye is very noticeable in contrast to the black surrounding it. While courting, the male bird utters an apology for a song — a sort of sputtering address — to the female, which I have attempted to translate into the following syllables: *tuck-tuck-qsi'! tuck-tuck-qsi!* The female, which is brownish black in color and without the brilliant iridescence, seems to enjoy this effort at bird music, however grotesque

it may appear to our untrained ears. I have watched the operation of nest building and found the male bird very attentive as an escort, but apparently not accustomed to condescending to manual, or rather rostral labor. Several pairs usually congregate in the same vicinity to breed, the blackbirds being eminently social fellows at all seasons of the year. They are staunch defenders of their homes, flying about the head of an intruder with menacing cries and gestures.

The California brown towhee follows soon after with a rather bulky nest, placed not very far from the ground, and containing four or five pale greenish, black spotted eggs; and at about the same time the red-winged blackbird fastens its beautiful basket among the swamp grasses, in which to deposit the four or five dull bluish green eggs, spotted and scrawled with brown, black and lilac.

The western house wren and the red-shafted flicker come next in order among

the nest builders, followed closely after by Gambel's white-crowned sparrow. The house wren's nest is commonly placed in a bird box or in some out-of-the-way corner of a woodshed or barn. The little fellows lumber up their homes with a great mass of sticks, but always arrange a soft, feathery spot for their numerous heavily-speckled, brown eggs. The red-shafted flicker, like all the woodpeckers, digs a deep hole in a tree trunk, usually choosing a rotten limb for the purpose, and its eggs are always pure white. One lazy pair that I discovered had appropriated a hollow in an oak limb, which had been tenanted for a number of years by a pair of screech-owls. Gambel's sparrow builds its nest in a low bush or cypress hedge, and its pale greenish eggs are speckled with brown. During the mating season I have heard the male bird utter a curious note, somewhat between a trill and a low-toned rattle. It was accompanied by a quivering of the wings, and evi-

dently meant for a love-song, although without any of the sweetness of the bird's habitual strain.

The western lark-finch builds her nest during the latter part of April, placing it, as a rule, in a low bush or tree, and laying some four or five white eggs scrawled with dark brown lines. The house finch, which has been carrying on an animated courtship for some time past, begins to breed at about the same period, or perhaps a trifle earlier. The nest is placed in vines about houses, among the garden trees or bushes; and the eggs, usually four in number, but rarely increased to seven, are pale bluish green with fine dots of black. It is strange that a bird which passes most of the winter with us should not nest earlier, but they evidently plan to finish the family cares just when the fruit ripens, so that the young can be initiated into the mysteries of robbing orchards.

By the twenty-fifth of April the warbling vireo and the western chipping

sparrow, both migrants which have been scarcely a month with us, have begun nest building. The vireo's nest is one of those exquisite bits of bird art which fill us with a sense of wonder. It is a compact little basket of grasses, woven together and securely lashed from its rim to a fork of a slender, swaying branch. The eggs are white, with a faint pinkish blush when fresh, and dotted with brown. Happy must be the life of the little ones that emerge from them, in that graceful hanging basket, sheltered overhead by the spreading leaves and swayed by every gentlest breeze. The father bird is a tireless songster, and his loud, sweet warble is one of the delights of May.

Bullock's oriole, with a still more wonderful hanging basket to contain the white, curiously scrawled and spotted eggs, also commences the home cares late in April. The demure little western flycatcher makes her mossy nest in some crevice in the bank beside a stream,

laying her delicate white eggs dotted with reddish brown; the black pewee places hers under the eaves of the veranda, building it of moss and straw plastered with mud, and laying four or five white eggs. The valley-quail has laid her numerous buff, brown spotted eggs upon the ground, under a sheltering bush, and in due course of time will be leading her little chicks afield, watching with anxious solicitude for every sign of the approach of danger.

During the month of May the height of the breeding season is reached. The western meadow-lark is nesting now, although I suspect it is her second brood, now first discovered in cutting the grain. The lazuli-bunting lays her pale bluish eggs during the early days of May, building a rather clumsy nest of grasses in some low bush. About this same time the barn and cliff swallows are also plastering their nests under the eaves of barns. Both species use mud for the outside of their homes, with straw and

feathers for lining. The barn-swallow's nest is formed like a half cup, open at the top, while the cliff-swallow's home is gourd-shaped, closed except for a hole upon the side like the neck of a bottle. The eggs of both species are white, heavily dotted with brown.

The summer warbler, russet-backed thrush, and black-headed grosbeak, three of our typical summer breeding birds, also begin nesting during the first half of May. The lovely little summer warbler, so well known both in the eastern and western states, with its fine gold plumage faintly streaked on the breast with reddish brown, and its vivacious crescendo song, is a familiar summer resident here. Its nest is placed in the upright fork of a tree, and composed of soft seeds and plant shreds, felted and woven into a compact home. The eggs, four or five in number, are whitish or grayish in color, spotted with brown of various shades, the markings, usually heavier around the larger end, tending to

form an irregular ring. The thrush builds a rather bulky nest in a bush or thicket, often near a stream, and its eggs are bluish green spotted with brown. The black-headed grosbeak makes a very flimsy apology for a nest out of sticks and rootlets, in which are deposited three or four greenish eggs, heavily spotted with brown. The loud, sweet and clear, but monotonous song of the male bird is uttered from morning until night. It may be expressed by the syllables *cherrie'*, *cherrie'*, *cherrie' chee*, *chee*, *chee'!*

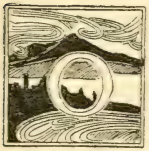
The list of loiterers who do not begin to breed until during the latter half of May is small, including the mourning-dove, which lays two white eggs upon the merest platform of twigs, the western kingbird, a rather rare breeder in the immediate vicinity, the Oregon towhee, and probably the ash-throated flycatcher, although eggs of this last species are not recorded before the ninth of June. The Oregon tow-

hee hides away her nest of speckled eggs so carefully upon the ground that it is exceedingly difficult to discover. The kingbird's nest is a rather large affair, placed upon a limb of a tree, and containing four or five white eggs strongly marked with brown spots. The ash-throated flycatcher nests in a deserted flicker's hole or in a hollow stump, and has the singular habit of almost invariably adorning its home with the cast-off skin of a snake. The eggs are buffy, heavily scrawled with brown or purplish lines.

We have now scanned the list of breeding birds so far as I have met with them about Berkeley. During the month of June the work of rearing a family still continues, and in July many species are busy with their second brood. It is a season of intense anxiety and care to the parents, and fortunate are they who escape the vigilance of cats, small boys, and other plunderers. Many eggs never hatch, and many of

the young perish during the first days of their life. Then comes the perilous first venturing from the nest on untried wings, and seldom do the earnest little parents succeed in rearing an entire brood. I would that we could all take a more friendly interest in our bird neighbors, especially during this season when they are drawn near to us by so many associations of family love. If we could but watch them without interference we would learn more than any collection of blown shells can possibly teach, and especially would we learn that greatest lesson of love for every creature with gentle ways upon the face of the earth.

IN A MISSION PATIO.



ON the first day of November, 1776, that zealous and noble Franciscan, Father Junipero Serra, assisted by Father Gregorio Ammurio, founded, some three miles from the sea and nearly midway between the present cities of Los Angeles and San Diego, the mission of San Juan Capistrano. The bells were rung from the trees and mass was celebrated by the fathers, participated in by a small company of mission soldiers, and perchance a few friendly Indians. Then followed the labor of building a mission. Adobe bricks were cut and baked in the sun. Tiles for floor and roof were burned. Pine trees were felled in the mountains many miles away and carried by hand to the spot. Gradually about the

great quadrangle arose the simple, symmetrical buildings of the establishment — the arched corridors, the tiled roofs, the doors hewn by hand out of planks.

Just twenty-one years later work upon the magnificent stone church was commenced at one corner of the quadrangle, and in 1806, after nine years of labor, it was completed, its walls decorated, its bells hung in the massive tower, and its saints enshrined.

And to-day, nearly a hundred years later, what ruin greets the eye! Earthquake and vandalism have left but a suggestion of the splendor of its prime, although the ruin is full of poetry as well as pathos. In this ruin I spent the month of January a year ago, and it occurred to me many times that here, where the hand of time had so rudely shaken all the landmarks of man, there is at least one feature of the scene which is substantially the same to-day as upon that eventful morning when Father Serra first said the mass here. I refer

to the birds. It was therefore with peculiar interest that I watched my little feathered friends in the spot of sacred memories, and often I found myself wondering if Father Ammurio or Father Mugártegui ever found time with all their prayers and masses, their busy concerns of practical life and innumerable duties in converting and directing the Indians, to look outside at the beautiful world of nature. They planted vineyards and olive orchards, why may they not have noticed some of the birds in their strange surroundings and wondered about them? However this may be, the birds still frequent the mission patio as in the olden days, and if you will transport yourself in imagination with me to the ruin, I will endeavor to show you some of the beautiful things which the pious fathers might have seen in their dooryard had they been so disposed.

During that month of January I found thirty-two birds in the vicinity of

the mission, a very considerable number of them frequenting the shrubbery of the ruins, while others dwelt hard by in the olive orchard or grain fields. It was hardly the season for song, yet the meadow-larks tuned their pipes in the pasture-land across the way from the mission, the linnet sat upon the tiles and caroled his animated strain, and the song-sparrow perched amid the shrubbery of the neglected graves and sang such pure notes as would have given solace to the dead could they but have had ears beneath the sod. I look at the head-stones on the graves and fancy those simple Indian men and maidens of a century ago, those cavaliers, vaqueros or soldiers from Mexico or Spain, walking beneath the shady corridors, perchance whispering the old, old story to some dark-eyed señorita as the padre turned his back upon them, and that sweet strain of the song-sparrow filling in the moments of silence to lighten the heartbeats and lessen the suspense of

the moment! Surely they heard the linnet sing as I hear it now! What lover but would listen to such a passionate outburst? And now they are all gone and forgotten, the weeds have grown up into trees above them, and the birds still sing in the branches!

The mission stands upon a gentle swell of land with the willow-fringed arroyo below it at one side, its cool stream winding down between the hills to the sea, which may be seen from the outer corridors of the mission as a little strip of blue in a gap of the hills. The willows are a favorite resort of the western Maryland yellowthroat, a beautiful little warbler which winters there. Its back is clear olive-green, changing to grayish on the head, its under parts are a beautiful pure yellow, most brilliant on the throat and under tail-coverts, while a large black mask covers the sides of the face, extending through the eye to the base of the bill, and surmounted by a narrow line of

white. The yellowthroat always impresses me as such a neat, trim, genteel creature, and I am very fond of its light, dainty manners. As it flits about among the willows it repeatedly utters its call-note, a quick *check*, *check*, low and unobtrusive, but emphatic. It is a quick, alert little fellow, constantly busy searching for insects about the willows or pools of water, deftly picking them from the leaves or from the scum upon some stagnant pool, sometimes even wading into a shallow basin in its search, and then suddenly flitting into the air after a gnat which the bright eyes had espied.

The arroyo is, of course, the haunt of the belted kingfisher, a happy fellow who gives life and color to any landscape he may favor with his presence. He is such a hearty, enthusiastic creature, with his loud call, his vigorous flight above the stream, and now and then his splash into the water after a fish. Where the arroyo widens out

into a swampy patch the red-winged blackbirds congregate in vast numbers, and their melodious clatter fills the air with a sort of joyous stir. They are among the showiest of our birds with their glossy black plumage and brilliant scarlet shoulder patches. I fancy that even the devout Father Serra, with mind intent upon the baptism of more Indian babies, must have looked up now and then as he passed a swamp crowded with these birds and rejoiced with the beautiful creatures so full of the joy of the open air and the winter sunshine.

Brewer's blackbird was as abundant in the upland fields as the red wings were in the swamps. This species, by the way, is the only true blackbird found in California, and therefore cannot be confounded with anything else unless it be the crow, which is fully twice its size. The crows were exceedingly abundant about Capistrano, and no doubt their noisy calls and croaks were sweeter to my ear than to the

farmers', who think of them only as inveterate pillagers of the corn fields. To me they recalled a Wisconsin boyhood with all the delights of woodland rambles and country life. In California the distribution of the crow is much restricted, and I have never seen one about Berkeley or any of the San Francisco Bay regions except in Marin County.

One of the birds which particularly interested me about the mission was the white-throated swift. The swifts are peculiar birds, which old-time ornithologists supposed to be related to the swallow, but which are now considered to be more closely allied to the hummingbird and goatsucker families. The common chimney-swift (or swallow, as it is still sometimes incorrectly called) is a familiar example of the group, which numbers only four North American forms, but the white-throated swift is greatly restricted in distribution, and I had never before had so good an

opportunity to observe its habits. It is a brown bird, with an irregular white patch on the throat and breast. It is a very swift flier, alternately soaring and fluttering with rapid vibrations of the wings, and frequently utters its high, nervous, incisive and prolonged twitter while darting through the air. Large flocks haunted the mission ruins, alighting upon the ragged edge of the flat church dome — the only portion of the stately stone pile which still holds its head up in defiance of the ravages of time.

Upon these same ruined chancel arches the cliff-swallows have plastered their mud nests, oblivious of the pains which had been bestowed by patient hands, no doubt of Indian neophytes, upon the delicate green design which had been painted upon the cement as interior decoration of the church. There is no one to care now how much the swallows may cover the patterns with their homes, and the nests add not a

little to the poetic charm of the ruin. In January, however, the cliff-swallows were away in the south, and only a few of the early white-breasted swallows were noticed about Capistrano.

The black pewee was one of the most constant inhabitants of the ruin. Sometimes he sat in the garden among the wallflowers and geraniums which old Pedro Verdugo attended, or again he would rest upon the tiles or upon a projecting door cornice in the corridors. He is a staid, demure little fellow, with quiet manners, except for the occasional jerky up and down tilt of the tail. His note is a quiet, short *tsip*, usually uttered as he flits from perch to perch. His head is blackish, and his back dark slate, this color extending around the throat and breast, abruptly marked against the white of the under parts. Hear the loud snap of his bill as he flits into the air from his perch and catches an insect on the wing! He is solitary, but with an air of independent

contentment, finding plenty to eat in the mission garden. I saw him chase a tiny ruby-crowned kinglet from the olive-oil press, giving several mock-savage snaps of his beak by way of warning. He didn't propose to have any intruders in his domain, especially if they were small enough to be driven off without risk to himself. He seems to be as much at home here as the old sacristan in his serape, a relic of the olden times.

Say's pewee is another member of the flycatcher family very much in evidence about the mission patio. It is a brownish gray bird, darker on the head and with the tail nearly black. The abdomen is cinnamon color and there is an obscure buffy bar upon the wings. He is fond of sitting upon some tall weed stalk in the court, at times fluttering in the air five or six feet from the ground with a light, loose, moth-like motion of the wings. Then all of a sudden he pounces upon some insect hidden in the

grass, and presently we see him upon his perch devouring a luckless cricket. The call-note of Say's pewee is a rather melodious *pe' wit*, less sharp and metallic than the cry of many flycatchers, and with something almost flute-like in its quality. As we watch the bird he flies from his weed stalk and perches upon the pointed tile covering of an old chimney, repeatedly sounding his call, and occasionally emphasizing it with a flirt of the tail.

Gambel's shrike, a variety of butcher-bird, made himself very much at home about the mission during my stay there. He would sit patiently in a leafless peach tree in the front garden, waiting for plunder, and always impressed me as being such a very clean-cut, smooth sort of a bird. He looked so innocent and would even essay an attempt at a warble on special occasions. See him as he stands there with his soft, bluish gray back, his pale grayish white breast, the conspicuous black streak

upon his cheeks, his black tail and the heavy black trimmings, edged with white, on the wings. He remains immovable for some time, apparently unconcerned with anything in the world. Now and then he looks quietly to the right and left, when a sudden gust of wind, springing up from the sea, puffs out his feathers and unsettles his equilibrium for a moment. Suddenly he is all animation. His sharp eye has espied a cricket in the grass and he flutters down to the ground for his prey, soon to resume his perch and quiet, dignified ways. I am sorry to say that the butcher-bird is not averse to making a meal of some luckless little bird when insect fare is scarce.

One frosty morning I found a female Audubon's warbler lying dead on the threshold of my door, where it had probably gone for shelter. This little creature is peculiarly sensitive to the cold and often succumbs to a sharp frost, yet it persists in passing the

winter all over the valley region of California instead of going farther south with the other warblers. I wrote down a description of the little creature in my hand, as follows: Back, grayish brown faintly streaked with dull black; rump, yellow; tail, dull black. A clear spot of white marked each tail-feather except the two middle ones, being largest on the outer feathers and decreasing toward the center. The breast was grayish white, the throat dull yellowish, this color extending down on the sides of the breast. The abdomen and under tail-coverts were pure white, and a narrow ring of the same encircled the eye. There were two obscure whitish and buffy bands on the wings and a concealed patch of yellow on the head. The bill and feet were black. The male bird is similar in markings but all the colors are more intensified — especially the patches of yellow and black. In the breeding season the markings of the male bird are still more brilliant

and clean cut. This warbler was common about the mission and surrounding country during my stay there — a bright, animated bird with a sharp *tsip* of a call-note.

At almost any time of the day we may see from the mission patio the black form of the turkey-buzzard sailing overhead with peerless command of the air. We note the separated tips of the long flight-feathers, giving the wing the appearance of having a frayed edge, the contrast of color between the black body and heavy shoulders, and the wing-quills, which show the sunlight through them, giving a light brownish appearance. The buzzards were well fed, I fear, during our visit to Capistrano, for the drought was so protracted that the old sheep were not strong enough to nurse their young, and many a lamb was left by its helpless mother, dead upon the hillsides.

Then there are the barn-owls which are so inseparable a feature in my

memory of the ruins. They occupied the room next to mine — the one containing some of the images which had once graced the church — and when I first heard them bustling about in there in the dark I was inclined to fancy that perhaps some of the saints had come to life. I looked up at the rude old door separating the refectory, where I sat, from the relic-room and half expected to see St. John, the beheaded, standing there before me. But it proved to be only a harmless pair of sedate old owls. It was no doubt one of this same pair that I encountered one fine moonlight night as I walked in the graveyard. The creature started out of the shadow of an adobe wall, uttering a wild shriek, and flapped directly in front of me. I have no doubt the wise old fellow laughed to himself to think what a start he had given that foolish mortal who had no business to be in such places, anyway.

The mocking-bird was abundant about Capistrano, but it was not in song

during my stay there. Many of our most familiar little birds about San Francisco Bay were equally common also, such as the green-backed goldfinch, the California brown towhee, the spurred towhee, Gambel's white-crowned sparrow and the ash-throated flycatcher. The valley-quail was common in the underbrush along the streams, and the mourning-dove flashed over the meadows upon its swift pinions. Anna's hummer had sampled all of the old sacristan's flowers, just as in the olden time when it had buzzed about the garden and over the padre's head as he walked there in meditation.

Yes, the birds and the flowers are about the only things surrounding the mission that have not changed. Even the trees have grown old — the olive trees planted in the early days, the pepper trees of later date, and the immense prickly pear hedge — these are all different; but the Indian tobacco plant is the same as a century ago, hanging

its yellow trumpet blooms by the adobe wall, and the white-crowned sparrow travels with the same rapid, even hop beneath it and sings the same plaintive, high-pitched song. Little do the birds know of the life drama which has been enacted here — of the struggles and aspirations of the Franciscans, of their marvelous success, of the hosts of Indian converts laboring here, and then of the dissolution, decay, disintegration. Nature remains calm and serene while principalities grow and crumble. She takes little account of centuries, but sweeps onward through æons, slowly advancing with irresistible power. Yesterday a great mission establishment, and to-day a nesting place for owls and swallows! But the life of yesterday was in the darkness of vaulted chambers, and the life of to-day is in the free air and sunshine of heaven.

APPENDIX.

A DESCRIPTIVE LIST OF CALIFORNIA LAND BIRDS WITH KEY.

The following descriptive list of the birds of California, includes all species normally occurring within our limits. I have omitted a number of accidental visitants from the east and south of which only one or two occurrences have been noted. I have subordinated subspecies whenever it seemed possible, feeling that the fine distinctions necessary to a comprehension of them are too difficult for the novice. My first aim has been to make the descriptions simple, and all technical terms have therefore been eliminated.

In my descriptions I have drawn freely from Ridgway's Manual and Coues' Key, and the collection of the California Academy of Sciences has been constantly consulted. The distribution of species is largely summarized from Belding's Land Birds of the Pacific District.

The beginner is urged to use the descriptions without the key whenever possible, thus fixing in mind the main points of classification. The size of each species is indicated by the average length of the dead bird stretched out and measured from tip of bill to tip of tail, as given in standard works. Allowance must therefore be made in the living

bird, which looks much shorter. If this list serves to make the unscientific acquainted with the commoner birds of California it will fulfill its mission.

ARTIFICIAL KEY TO CALIFORNIA LAND BIRDS.

In using the key note first whether the bird in question belongs among the game birds (grouse, pigeons, etc.), the birds of prey (hawks, owls, etc.), the woodpeckers, or the hummingbirds. If it fits in any of these familiar groups find the page of the proper key. If not, observe the general artificial groups of A, crested birds, and B, uncrested birds. If it is not in the small group of crested birds, note next the five main divisions according to color and markings:

I. Males with black predominating. Females sometimes partly brownish or white. Page 240.

II. Birds with some bright conspicuous color, at least in the male. This color may be either blue, red, or yellow. Page 241.

III. Birds without any conspicuous color, but with either a trace of yellow, markings or patches of rufous, olive-green or iridescent green. Page 247.

IV. Birds without any conspicuous color (dull browns, grays, bluish grays, etc.), but with some special markings of black, dark brown or white. Page 251.

V. Birds without any conspicuous color and with no especially pronounced markings. Page 257.

Having determined in which of the above main divisions a given bird belongs, commence with the

alternatives presented under 1, 2, 3, 4, etc. Then take up the subdivisions under a, b, c, d, etc., and so on until the bird is found. If it does not work out correctly keep on with the key, as in many instances the same bird is given two or more times under different headings. The identification should always be verified in the descriptive list. The number following the bird's name in the key corresponds with the number of the bird in the list. In using the key notice that the name of each bird follows the description. An opera glass and a large store of patience are invaluable in identifying birds in the field. Even then the value of a key is only relative. It will generally be found helpful with male birds and in some instances may serve in identifying the female also.

Grouse, Quail and Partridge Family. (All game birds allied to the hen.) Page 264 to 267.

Pigeons and Doves. Page 267 to 269.

Birds of Prey, with strong hooked beaks and talons.

Vultures and Condors (carrion feeders with featherless heads). Page 269.

Hawks, Eagles, etc. Page 269 to 281.

Owls (eyes directed forward). Page 282 to 286.

Woodpeckers (clinging to the trunks of trees and pecking the bark). Page 287 to 293.

Hummingbirds. Page 296 to 298.

All birds not included in above groups as follows:

A. Birds with crests.

I. Black or brownish gray bird with white wing patch. Length 7.5 inches.

Phainopepla . . 151

II. Gray birds with whitish breast and no special markings. Hammers the bark with its beak. Length 5 inches.

Plain Titmouse . . 192

III. Rather large dark blue bird with white on under parts. Sides of female reddish brown.

Belted Kingfisher . . 44

IV. Rather large dark blue bird with no white, but some smoky blackish.

Stellar's or Blue-fronted Jay . 86

V. A large bird with very long tail and long legs. Crest inconspicuous. Streaked blackish, brownish and whitish.

Roadrunner . . . 42

VI. Colors soft fawn, ashy and yellowish, with waxy tips on wings. Size of a sparrow.

1. Under tail-coverts reddish brown.

Bohemian Waxwing . 153

2. Under tail-coverts white.

Cedar Waxwing . . 154

B. Birds without crests, or crest so inconspicuous as to be easily overlooked.

I. Males with black predominating.

1. Males wholly black. Females sometimes partly brownish or white.
   a. Length 18 inches or more.
      a'. Length 24 inches. Feathers of throat sharp and distinct, producing a roughened effect.
         Mexican Raven . . 90
      b'. Length 18 inches. Feathers of throat smooth.
         American Crow . . 91
   b. Length not over ten inches.
      a'. Feet well developed like a crow's. Female dark brownish black.
         Brewer's Blackbird . 102
      b'. Feet weak. Wings highly developed. Female with white breast.
         Purple Martin . . 142

2. Males mostly black. Females often streaked with brown and whitish.
   a. Red patches on shoulders.
      Red-winged Blackbirds . 95-97
   b. Yellow breast, and generally entire head yellow.
      Yellow-headed Blackbird . 94
   c. Conspicuous white wing patches.
      Lark Bunting . . 140
   d. Conspicuous white shoulder patches and belly white. Size large; tail long.
      Magpie . . . 84-85

II. Birds with some bright conspicuous color, at least in the male.

1. Birds with conspicuous bright blue. Females generally grayish or brownish.
   a. Male almost completely blue.
      a'. Wings and tail black; bill thick.
         Western Blue Grosbeak . 138

      b'. Wings blue; belly white; bill slight.
         Mountain Bluebird . 204

   b. Half or less of the body blue.
      a'. Head pale blue; under parts of body gray tinged with blue.
         Pinon Jay . . . 93
      b'. Head bright blue, with white line over eye; under parts of body largely grayish white.
         a''. Under tail-coverts white.
            California Jay . . 87

         b''. Under tail-coverts blue.
            Santa Cruz Island Jay . 88

      c'. Back wholly blue; breast rufous; size small.
         Lazuli-Bunting . . 139

      d'. Bright blue back with chestnut patch in middle; breast chestnut; throat blue.
         Western Bluebird . . 203

2. Birds with conspicuous bright red, at least in the male. Females often streaked with brownish and gray.
   a. Upper and lower mandibles crossed at tip.
      Crossbill . . . 108

b. Bill thickened; length 8 inches; much gray in plumage.
Pine Grosbeak . . 104

c. Bill very short and acute; size small; crown, breast and rump rosy red; throat blackish.
Redpoll . . . 110

d. Bill medium, sparrow like; general color grayish brown, back streaked. Fore parts of body crimson or bright red in males, especially on head.
Purple and House Finches 105-107

e. Bill medium, sparrow like; general color chocolate brown, hinder parts of body rosy red; head black and gray.
Leucosticte . . . 109

f. Bill thickened and notched near the tip. General color bright yellow. Fore parts of body crimson or bright red.
Male Western Tanager . 141

g. Red sharply confined to crown.

a'. Belly yellow; length 9 inches.
Western Kingbird.

b'. Belly grayish white; back olive-green; length 4 inches.
Ruby-crowned Kinglet . 195

c'. Belly grayish white; throat blackish; back streaked brown and gray; length 5.5 inches.
Redpoll . . . 110

3. Birds with conspicuous bright yellow, either generally diffused or in restricted spots.

a. Males almost completely yellow; back olive-green in tone, and faint reddish brown streaks on breast. Females with olive-greenish tinge.

Yellow Warbler . . 161

b. Almost completely yellow; back olive-green; forehead deep yellow, but cap black. Female without black cap and with back more olive-green.

Pileolated Warbler . 170

c. Almost completely yellow, with black cap, wings and tail.

American Goldfinch . 111

d. Breast bright yellow; back greenish, brownish, grayish or black.

a'. With black mask on side of face and over forehead, bordered behind by a gray band.

Western Yellow-throat . 168

b'. With black throat. Adult male with middle of back, wings and tail also black.

Bullock's or Arizona Hooded Oriole . . 100-101

c'. With black crescent on yellow breast. Back streaked gray and brown.

Western Meadow Lark . 98

d'. With black cap, wings and tail. Back grayish or olive-greenish.

a''. Throat yellow; back olive-green.
Green-backed Goldfinch 112

b''. Throat black; breast with yellow patch, and back grayish.
Lawrence's Goldfinch . 113

e'. With black head and sides of face, the latter bordered with a broad yellow line; a large black throat-patch. Back olive-green streaked with black.
Townsend's Warbler . 165

f'. With black head and back; general color orange yellow.
Bullock's Oriole . 101

g'. No black save a spot between bill and eye. Two white lines running back from bill, one above eye and one bordering the yellow throat.
Long-tailed Chat . 169

h'. No black. Head and neck ashy gray; top of head chestnut; back olive-green.
Caleveras Warbler . 159

e. Breast, back and head black. Rest of body bright yellow.
Scott's Oriole . . 99

f. Breast gray or brown. Belly bright yellow.

a'. Bill thickened.

a''. Forehead white; a very large patch on black wings; general color dull yellowish and olive-brown.
Evening Grosbeak . 103

b''. Top of head black, often with a lighter line down the center.
Black-headed Grosbeak . 137

b'. Bill flattened.

a''. Top of head with concealed patch of scarlet.
Western or Cassin's Kingbird . . . 71-72

c'. Bill slender; head and throat ashy or slaty gray; no marking except white on eyelids, and black between bill and eye; back olive-green.
Macgillivray's Warbler 167

g. Entire head yellow. Back gray; breast whitish.

a'. Back spotted and streaked with black; a large black throat-patch and gray breast. White wing bars.
Hermit Warbler . 166

b'. No black; patch of chestnut on wing-coverts.
Verdin; Gold-tit . 193

h. Rump yellow.

a'. Bill slender; size small.

a''. Throat white.
Yellow-rumped Warbler 162

b''. Throat with at least a trace of yellow; in full plumage bright yellow.
Audubon's Warbler . 163

b'. Bill immensely thickened; size larger than a sparrow.
Evening Grosbeak . 103

i. No yellow except golden crown bordered with black.

a'. Back olive-green; size very small.
Golden-crowned Kinglet 194

b'. Back streaked brownish and blackish brown. Back of crown ashy or whitish.
Golden-crowned Sparrow 123

III. Birds without any conspicuous color, but with a trace of yellow, markings of rufous, olive-green or iridescent green.

1. Birds with some trace of yellow, either in special areas or in general tone.

a. Yellow on some part of the head.

a'. Dull yellow on crown.

a''. Back streaked dark brown and buff.
Golden-crowned Sparrow 123

b''. Back plain olive-green.
Lutescent Warbler . 160

c''. Back and breast plain gray; rump sometimes yellow. Bill stout; size larger than a sparrow.
Female Pine Grosbeak . 104

d''. Back and breast olive-gray; rump yellowish; bill crossed.
Female or young Crossbill.

b'. Faint yellow stripe above the eye. General effect of plumage streaked brown and white.
Savanna Sparrow Group 117

c'. A small yellow spot just above and in front of eye. Head and throat black with two sharp lines of white, one separating throat from cheek-patch and the other above the eye. General color gray and white.

Black-throated Gray Warbler 164

d'. Pale yellowish on sides of head and throat. Crescent on breast black.

Horned Lark . . 83

b. Yellow on body, wings or tail.

a'. Under parts yellowish olive; upper parts brownish olive ; edges and bars on wings whitish; bill long and sharp; length 7 inches.

Young Arizona Hooded Oriole 101

b'. Belly pale yellowish white; wings and tail rufous.

Ash-throated Flycatcher . 73

c'. Yellow more or less evident at base of tail and outer edges of wing-feathers; sometimes also on rump and wing bars. General plumage streaked gray, white and brownish. Size small.

Pine Finch . . 114

d'. Yellow on shoulder and inner edge of wing. Below buffy and white, unstreaked. Above streaked brown.

Grasshopper Sparrow . 120

e'. Yellow on outer edge of wing-feathers; general coloration gray, darker above.

Young Lawrence's Goldfinch 113

f'. General tinge of yellowish on the grayish or olive-greenish plumage. Size small.

a''. Bill very fine; size very small.
Female Ruby-crowned Kinglet.

b''. Bill slightly stouter and size larger.
Hutton's Vireo . 156

c''. Bill fine; greenish olive below.

a'''. Tail plain grayish brown.
Female Lutescent Warbler 160

b'''. Tail yellow on inner webs.
Female Yellow Warbler 161

d''. Bill flattened and broad.
Western Flycatcher . 78

e''. Bill stout; sparrow form.
Female Green-backed Goldfinch . . . 112

2. Birds with conspicuous markings or patches of reddish brown or orange brown.

a. Back chestnut; throat sooty black; sides of head white; size small.
Californian Chickadee 190

b. Breast reddish or orange brown, the color extending over nearly the entire under parts.

a'. Breast orange brown, with a black crescent ; conspicuous wing bars of orange brown.
Varied Thrush . 202

b'. Breast reddish brown, with no crescent.

a''. Back bluish or slaty gray; head blackish or grayish brown.

a'''. Length 10.5 inches. Throat white, streaked with black.

Western Robin . 201

b'''. Length 4.5 inches.

Red-breasted Nuthatch 186

c. Throat and fore breast chestnut or rufous; under parts whitish or buffy. Above lustrous bluish black; flight sustained.

a'. Forehead chestnut; head and back continuously bluish black; tail long and forked.

Barn Swallow . 144

'. Forehead whitish or buffy; collar around hind neck, and rump rufous; a blackish spot on chest. Tail short.

Cliff Swallow . 143

d. Sides rufous; head, back, throat and breast mostly black.

Spurred Towhee . 134

e. Head with bright rufous or chestnut cap; breast plain gray.

a'. Back brown, broadly streaked with reddish brown; breast buffy white.

Rufous-crowned Sparrow 130

b'. Back brown and gray, with fine brown streaks; breast ashy white.

Western Chipping Sparrow . . . 124

c'. Back olive-greenish; throat white.

Green-tailed Towhee 136

3. Birds colored olive-green or with some iridescent green or dull green.
   a. Above plain olive-green.
      a'. Below dull olive-yellowish or olive-greenish.
         Female Lutescent Warbler 160
      b'. Below plain gray.
         a''. Smaller; slighter bill.
            Female Ruby-crowned Kinglet 195
         b''. Larger; stouter bill.
            Hutton's Vireo . 156
   b. Above dark glossy green; under parts pure white.
      White-bellied Swallow 145
   c. Above velvety green and purplish; under parts white.
      Violet-green Swallow . 146
   d. General color streaked white, gray and brown, burnished with greenish and bluish iridescence. Length 24 inches.
      Road Runner . . 42

IV. Birds without any conspicuous color (dull browns, grays, bluish grays, etc.), but with some special markings of black or white.*
   1. Birds with a conspicuous black cap in contrast to color of back.
      a. Throat also black; size small.

[* By special markings I mean such as a black cap, a white line over eye, a black streak on face, a black or clearly defined white throat, conspicuous white bars or spots on dark wings or tail, or clearly defined white markings on a black back, but not the streakings or barrings of the body.]

a'. Wings and tail brownish gray, unmarked. Sides of head conspicuously white.

Mountain Chickadee 189

b'. Wings with two white bars; outer tail-feathers white; sides streaked with black.

Black-throated Gray Warbler 164

b. Throat and breast white, but tail largely black with white edgings.

a'. Tail short; habits of woodpeckers; two middle tail-feathers bluish like back.

a''. Sides of head broadly white, including the eye.

Slender-billed Nuthatch 185

b''. A black stripe back of eye with a white line separating it from black cap; belly more or less buffy.

Immature Red-breasted Nuthatch . . . 186

b'. Tail long; size very small.

Black-tailed Gnatcatcher 197

2. Stripes of black and white or chestnut and white on the head.

a. Stripes of black, white and chestnut on head and sides of throat; tail black and white.

Western Lark Finch . 121

b. Stripes of black and white on top and sides of head only. No white on tail.

White-crowned Sparrow 120

3. Conspicuous black marks on the sides of face, passing through the eyes; color bluish gray above, pale gray below. Wings and tail conspicuously black and white.

Shrikes or Butcher Birds 152-153

4. Throat-patch black; top of head brown or gray.

a. Back brown, streaked with black; top of head gray.

a'. An inhabitant of city streets.

Male English Sparrow 115

b'. Smaller, with longer tail. An inhabitant of the sage-brush.

Black-chinned Sparrow 126

5. Throat-patch white, in contrast to surrounding regions.

a. Back mottled brown and gray; under parts barred white and brown. Bill very small, but opening of mouth very wide. Length 8 to 10 inches.

a'. Wing bars white; tail forked.

Western Nighthawk . 60

b'. No white wing bars; tail square, broadly white-tipped.

California Poorwill . 59

b. Back brown, finely dotted with black and white. Bill very long, slender and curving. Length 5.5 inches.

Canon Wren . . 179

c. White throat bordered by broad black streaks, and these bordered by white streaks. Head gray; back light olive-

brown; belly white; flanks buff, streaked.

Bell's Sparrow . . 129

d. White throat and a breast patch of black; general color above streaked brown, below white.

Female Horned Lark . 83

6. Forehead and collar on hind neck white; hood on back of head smoky blackish; general color gray.

Oregon Jay . . 89

7. A white or pale buffy line over the eye in contrast to the color of the top and sides of head.

a. Wrens, holding their tails erect; bill slender; brown coloring; song vivacious.

a'. Length 6 inches; back grayish brown; rump cinnamon; breast whitish; belly pale cinnamon.

Rock Wren . . 178

b'. Length 5 inches; back dark brown, blackish in the middle, with white streaks; rump rusty brown; breast whitish; belly pale rusty.

Tule Wren . . 183

c'. Length 5.5 inches; color dark brown above, paler below; tail barred.

Vigor's Wren . . 180

d'. Length 7 inches. Back brown, conspicuously streaked with black and white. Under parts white, conspicuously spotted with black.

Cactus Wren . . 177

b. Back streaked brown and gray; bill long and slender; an obscure little bird clinging to the bark of trees.

Brown Creeper . 184

c. Back streaked with brown and gray; bill short and stout; cap of rufous.

Chipping Sparrow . 124

d. Back not streaked; plain olive-grayish; the breast grayish white; bill moderately slender; an active little summer songster.

Warbling Vireo. 154

8. A white ring around the eye. A small olive-green bird, dull bluish gray on head, whitish on breast, olive-grayish or greenish on sides.

Cassin's Vireo . 155

9. Tail conspicuously black and white. Length 10 to 13 inches.

a. Length nearly or quite 13 inches; bill long and stout; general color gray above and below; wings glossy black with conspicuous patch of white; all but two middle tail-feathers largely or wholly white.

Clarke's Nutcracker . 92

b. Length about 10 inches; bill moderately long and slender; general color brownish gray above, dull whitish below; wings dark brown with two white bars; three outer tail-feathers wholly or largely white.

Mockingbird . . 174

c. Length 13 inches. Color plain brown above, white below; tail black, broadly tipped with white; bill rather long and curving.

California Cuckoo . 43

10. Tail black and white. Length 4 to 6 inches.

a. General color bluish gray above, and grayish white or buffy white below. Length about 4 inches.

a'. Habits of a woodpecker; breast brownish or buffy whitish. Tail short.

Pygmy Nuthatch . 187

b'. Tail long; a little bird of the trees and bushes.

a''. Forehead and a narrow line over eye black in adult, but no markings on head in young plumage. Outer tail-feathers broadly white.

Western Gnatcatcher . 196

b''. No markings on head, and tail black, with only the outer edge of outer feathers white.

Black-tailed Gnatcatcher 197

b. Head and throat all around slaty blackish; under parts from middle of breast abruptly white; back brown.

Junco . . . 127

11. Outer tail-feathers white or white tipped, the rest of the tail plain brownish.

a. Plumage streaked brown and gray; shoulder patch chestnut.

Western Vesper Sparrow 116

b. Plumage dull brownish above and whitish below.

Young Western Meadow Lark 98

Young Western Lark Finch 121

c. Outer tail-feathers white-tipped; back grayish brown; breast white, conspicuously spotted with brown.

Sage Thrasher . . 173

V. Birds without any conspicuous color, and with no especially pronounced markings.

1. General effect of plumage neither streaked, spotted nor barred, but colors in solid masses.

a. General color slaty or gray.

a'. Uniform gray or slatly above and below. Length 8 or 9 inches.

a''. Tail long; a dull white ring around eye and whitish wing bars and tips of tail-feathers.

Townsend's Solitaire . 198

b''. Tail short. An inhabitant of mountain streams.

American Dipper . 172

b'. Prevailing color gray, lighter below; head brownish gray; length 4 inches.

a''. Tail long; bill short.

California Bush Tit . 192

b''. Tail short; bill long. Habits of woodpeckers.

Pygmy Nuthatch . 187

b. General color brownish gray, frequently paler below, sometimes tinged with yellowish.

a'. Bill much flattened and broad; birds without songs; flycatchers.

a''. Belly cinnamon brown.

Say's Phœbe . . 74

b''. Throat dingy white; sides broadly but indistinctly streaked olive-gray.

Olive-sided Flycatcher . 76

c''. Throat and belly whitish, the latter with a tinge of yellow. Two faint wing bars.

Western Wood Pewee . 77
Small Flycatchers . 78-81

b'. Bill sparrow form; size small.

Female Green-backed Goldfinch 112

c'. Bill slender, but stouter than a warbler's; size small.

Vireos . . 154-158

d'. Bill long and slender; rump cinnamon; tail held erect, with buffy tip and black subterminal bar.

Rock Wren . . 178

c. General color brown.

a'. Plain brown above, white below.

a''. Flight strong and sustained; tail short.

Rough-winged Swallow 147
Bank Swallow . 148

b''. An inhabitant of groves in the interior valleys; tail long.

Young California Cuckoo 43

b'. Plain dark brown above and on sides below; throat and breast white; flight sustained.

White-throated Swift . 63

c'. Plain brown above and below.

a''. Throat light; under tail-coverts rufous or cinnamon.

a'''. A familiar bunting of gardens and thickets. Bill stout; length 9 inches.

California Brown Towhee 135

b'''. Bill long and curved; length 12 inches.

Californian Thrasher 175

Le Conte's Thrasher 176

c'''. Bill flattened and broad; length 8 inches.

Say's Phœbe . 74

b''. Rump and tail grayish brown. Flight swift and sustained; length 5 inches.

Vaux's Swift . 62

c''. General color blackish or sooty brown; head sooty gray. Flight swift and sustained; length 7 inches.

Black Swift . . 61

d''. Breast light cinnamon; tail held erect; plumage loose and fluffy; size small.

Wren Tit . . 191

d'. General color brown above and fawn or buffy below; a rusty patch on wing; bill very stout.

Female Blue Grosbeak . 138

e'. A small unstreaked sparrow; brown above and pale buff below.

Female Lazuli Bunting . 139

2. General effect of plumage streaked above and below in brown, gray and white.

a. Bill thickened and sparrow like.

Bay-winged Bunting . 116
Savanna Sparrow 117-119
Song Sparrow . . 131
Lincoln's Sparrow . 132
Pine Finch . . 114
House Finch . 105-107
Female Lark Bunting . 140

b. Bill slender; birds running about in open fields in flocks and with a curious teetering motion at times.

American Pipit . . 171

3. Upper parts of body streaked; lower parts unstreaked.

a. General effect of streaks broad; a light line down center of head; tail short; bill rather large.

Young Grasshopper Sparrow 120

b. General effect of streaks very narrow; no light line on head; tail long; bill very small.

Brewer's Sparrow . 125

c. Plumage streaked grayish brown and rusty brown above; head rufous; throat

white with dusky streaks bordering it; under parts buffy.

Rufous-crowned Sparrow . 130

4. Upper parts of body solid brown; lower parts spotted, streaked or barred. Wings and tail with or without bars.

a. Bill stout; back dark brown; breast white, heavily marked with triangular brown spots.

Townsend's Sparrow Group 133

b. Bill slender; feet long and slender; back olive-brown; breast white or buffy, spotted with brown.

a'. Upper tail-coverts and tail resembling the back.

Russet-backed Thrush . 199

b'. Upper tail-coverts and tail rufous in contrast to back.

Dwarf-hermit Thrush . 200

c. Bill slender; feet long and slender, but scaled, unlike a thrush's. Back grayish brown; breast dull whitish profusely spotted with triangular brown markings. Tail tipped with white.

Sage Thrasher . . 173

d. Bill slender; tail held erect; wings and tail barred; size small.

a'. Length 5 inches; tail long; belly faintly barred with dusky.

Parkman's Wren . . 181

b'. Length 4 inches; tail short; belly heavily barred with dusky.

Western Winter Wren . 182

5. Upper parts slaty brown; breast white; sides broadly streaked with olive-gray; white patches concealed under the wings; bill broad and flat.

   Olive sided Flycatcher . . 76

6. Above and below pale brownish gray, lightly mottled with pale gray; a trace of rosy on rump; bill sparrow form.

   Female Leucosticte . 109

DESCRIPTIVE LIST.

KEY TO THE GROUSE, PARTRIDGE AND QUAIL FAMILY.

A. Crested.

I. Head plume long and slender, consisting of two straight feathers streaming backwards; sides chestnut, barred black and white.

Mountain-Partridge; Mountain-Quail 1

II. Head plume erect, wedge shaped.

1. Sides olive-brown, white streaked; middle of belly chestnut.

Valley-Partridge; Valley-Quail 2

2. Sides chestnut, white streaked; middle of belly black.

Gambel's Partridge; Gambel's Quail 3

B. Uncrested.

I. Feathers of top of head slightly lengthened; tufts of broad, soft, blackish feathers on sides of throat.

Oregon Ruffed Grouse . . 5

II. Stiff, hair-like tufts fringing the neck; tail very long and stiff; size very large. Living in sage-brush.

Sage-Grouse; Sage-Hen 7

III. No tufts on throat.

1. Tail short, with two soft, lengthened feathers ; feet feathered to the toes.
   Columbian Sharp-tailed Grouse 6

2. Tail square ; a comb of naked skin over eye ; black spot on cheek. An inhabitant of the pines.
   Sooty Grouse . . . 4

THE GROUSE, PARTRIDGE AND QUAIL FAMILY OF SCRATCHING BIRDS.

Birds of swift wing, flying with a loud whirring sound. They obtain their food largely by scratching the ground. They are ranked as game birds and include a number of species familiar to sportsmen.

1. Mountain-Partridge; Mountain-Quail; *Oreortyx pictus* (Dougl.).

Head plume long and slender, streaming backward. Length eleven and a half inches. Head lead colored; back olive-brown ; throat chestnut, bordered by a line of white ; breast lead colored or slaty bluish ; sides chestnut, barred with conspicuous markings of black and white. The mountain-partridge, strictly speaking, inhabits the mountains to the north of California, but a race form, differing chiefly in a more grayish olive tone to the back and in a few other minor points, breeds throughout the Sierra Nevada Mountains and winters in the foothills and Coast Range. Although known in the books as the *plumed partridge*, it is everywhere popularly called the mountain-quail.

2. California Partridge; "Valley-Quail;" *Lophortyx californicus* (Shaw).

Head plume erect or thrown forward; composed of wedge-shaped feathers. Length ten and a half inches. Upper parts olive-brown and gray; the forehead pale buffy or whitish, finely lined with black; top of head brown bordered with black; throat black bordered with white; breast plumbeous, changing below to buffy or whitish, where the feathers are bordered with dark brown, giving the belly a scaled effect, and with a central chestnut patch on belly; sides olive-brown, with narrow streaks of white. The female is similar, but lacks the black, white and chestnut, making it much duller and more monotonous in color.

This variety of the valley-quail is found in the coast valleys of the northwest coast of California and northward. In central and southern California a slightly paler form, the valley-quail proper, is found in the valleys and foothills both of the coast and interior.

3. Gambel's Partridge; *Lophortyx gambelii* (Gambel).

Length a trifle less than the preceding, which it resembles in general appearance. The top of the head is bright rufous, the belly is black centered instead of chestnut, surrounded by a broad patch of pale buffy, and the sides are chestnut with streaks of white instead of olive-brown, as in the preceding. A desert form occurring in California only on the Mojave and Colorado Deserts.

4. Sooty Grouse; Pine-Grouse; *Dendragapus obscurus fuliginosus* Ridgw.

The only scratching bird of California which habitually frequents high trees. Length nearly two feet. General color blackish brown mottled with rusty; on breast mottled slaty gray; cheeks black; throat white, mottled; tail blackish with broad gray band at the tip. An inhabitant of the pine woods of the Coast Range and the Sierra Nevada Mountains.

5. Oregon Ruffed Grouse; *Bonasa umbellus sabini* (Dougl.).

Distinguished by broad tufts of soft, glossy, brownish black feathers on sides of throat. Length about eighteen inches. General color rich rusty brown mottled with dark brown; under parts white, barred with brown and gray; tail reddish brown with a broad subterminal band of dark brown and several narrow bars. Found only in the extreme northern coast district of California.

6. Columbian Sharp-tailed Grouse; *Pediœcetes phasianellus columbianus* (Ord).

Distinguished by its short tail with two elongated feathers; feet feathered quite to the toes. Length about nineteen inches. General colors finely mottled brownish, blackish and buff, whitish below, the feathers brown edged. Found only in the extreme northeastern corner of California, where it inhabits the ground.

7. Sage-Grouse; *Centrocercus urophasianus* (Bonap.).

Largest of the grouse. Length over two feet. Distinguished by an irregular patch of black on the breast, the under parts being mostly white. General color mottled black, white and brown. A series of long stiff neck plumes are characteristic of this species. Found on the eastern slope of the Sierra Nevada Mountains in the sage-brush country.

KEY TO PIGEON AND DOVE FAMILY.

A. Size medium or large (12 to 16 inches).

1. Large white patch on wing.
   White-winged Dove . . 10
2. No white patch on wing.
   a. Tail square with black band across its center. A conspicuous white line on back of neck.
   Band-tailed Pigeon . . 8
   b. Tail long and pointed, broadly edged with white.
   Mourning-Dove . . . 9

B. Size very small (6 inches).
Ground-Dove . . . 11

THE PIGEON AND DOVE FAMILY.

Long, pointed wings, small head and swift flight. Bill rather delicate, with a soft swollen cushion at the base. Feet well developed. Food consists largely of seeds. Of some three hundred species of this family in the world but two are widely distributed in California.

8. Band-tailed Pigeon; *Columba fasciata* Say.

Length sixteen inches. Tail square, with a blackish subterminal band (often inconspicuous). Head purple or wine red; back lustrous bluish or greenish brown; lower parts purple, varying from pinkish to bluish. A white collar on back of neck. Female similar to male, but colors duller. The only pigeon found in California, breeding in the mountains and flocking to the valleys during the winter.

9. Mourning-Dove; *Zenaidura macroura* (Linn.)

Length twelve and a half inches. Tail long and pointed, outer feathers broadly tipped with white. Head bluish gray, changing on back and on neck to soft olive-brownish; breast pale pink purplish, changing to buff on belly. Sides of neck faint iridescent purplish and greenish; a blackish spot below the ear. Very generally distributed and common throughout the State. A characteristic quivering call uttered as it flies, and a mournful *coo'coo* uttered while at rest.

10. White-winged Dove; *Melopelia leucoptera* (Linn.).

May be distinguished by the large patch of white on the wings and the blackish tail broadly bordered with white. General colors soft brownish and bluish ash. Top of head and back of neck wine purple. Occurs in California only in the extreme south and southeastern part of the State.

11. Ground-Dove; *Columbigallina passerina pallescens* (Baird).

A diminutive species, about half the size of the two preceding ones; soft brownish and bluish above; forehead and under parts pinkish. Occurring rarely or accidentally in southern California.

THE VULTURE FAMILY.

Large birds of prey feeding on carrion, and with featherless heads and necks. Soaring with great ease and flight sustained.

12. California Vulture; California Cordor; *Pseudogryphus californianus* (Shaw).

Of immense size; length about four feet. General color black, or blackish brown; the wings edged and tipped with grayish and white, and the lining of the wings white. The skin of the head and neck is yellowish or orange. Now very rare and becoming extinct in most localities, but still found in the mountains of central and southern California.

13. Turkey-Vulture; Turkey-Buzzard; *Cathartes aura* (Linn.).

Length about two and a half feet. General color blackish, or brownish black; wing coverings grayish. Head dull red. An abundant and generally distributed species; migratory in the north.

KEY TO THE HAWKS, EAGLES, ETC.

A. Under parts pure white (occasionally faintly spotted with brown).

I. Back light bluish gray. Patches on shoulders and under side of wing, black. Head white.

White-tailed Kite . . 14

II. Back dark brown, with or without white edgings. Head white, generally streaked with dark brown.

American Osprey . . 30

III. Back reddish brown; shanks bright chestnut barred with black. Head streaked black and white. Belly barred with reddish brown.

Adult Ferruginous Rough-leg 23

B. Under parts white or buff, conspicuously streaked, barred or spotted. No solid brown patch.

I. Upper tail-coverts white or with bars of white and brown.

1. Upper tail-coverts pure white. Forehead and throat steaked brown and rusty.

Marsh-Hawk . . 15

2. Upper tail-coverts white and brown, barred. Size large; feet powerful; throat dark or light; tail grayish brown, barred.

Young Western Red-tail . 19

3. Upper tail-coverts heavily barred or streaked with brown. Forehead and throat white, with or without brown streaks.

a. Feet feathered to the toes.

a'. Breast white, lightly spotted or barred.

Young Ferruginous Rough-leg 23

b' Breast buffy, heavily streaked and spotted brown.

Young American Rough-leg 22

b. Feet not feathered to toes. Head streaked brown and white; back brown; breast buffy, heavily spotted and streaked with brown. Size large; feet small. (See 19 above.)

Swainson's Hawk . . 21

II. No white patch on upper tail-coverts.

1. Back slaty or lead color, sometimes brownish in tone.

a. Breast barred with reddish brown.

a'. Head like back. Length 11 to 13 inches.

Adult Sharp-shinned Hawk 16

b'. Head blackish brown in contrast to back. Length 15:5 to 19 inches.

Adult Cooper's Hawk . 17

b. Breast barred with fine zigzag *slaty* lines.

Adult Western Goshawk 18

c. Breast buffy, with dark brown streaks. Length 11 inches.

Male Pigeon Hawk . 28

d. Breast white or buffy, the sides and belly barred with black (streaked with black in young). Back barred with blackish plumbeous.

Duck Hawk . . . 27

2. Back brown, sometimes inclining to reddish or grayish.

a. Tail bright rufous with one or more bars.

a'. Size large. Top of head dark brown like back, or with but a trace of rufous.

Adult Western Red-tail . 19

b'. Size Small. Top of head slaty blue enclosing patch of rufous.

American Sparrow-Hawk 29

b. Tail dark brown, conspicuously barred with white.

a'. Size moderately large. Breast white, heavily streaked and barred with brown. Throat dark.

Young Red-bellied Hawk 20

b'. Size small. Length 11 to 13 inches. Throat pure white or with faint pencilings of dusky. White bars of tail narrow.

Young Pigeon-Hawk . 28

c. Tail grayish brown, broadly barred with dark brown.

a'. Tail square, size averaging small.

Young Sharp-shinned Hawk 16

b'. Tail rounded, size averaging larger.

Young Cooper's Hawk . 17

d. Tail grayish brown, rather indistinctly barred with buff. Throat white or buff with a broad line of blackish at sides.

Young Duck-Hawk . 27

e. Tail grayish brown, faintly barred with buff. Distinct dark lines on sides of white throat. White breast streaked and dotted with brown. Back generally grayish brown.

Prairie-Falcon . . 26

C. Under parts wholly brown or with a solid patch of dark brown on breast or belly.

I. Upper tail-coverts more or less white.

1. Upper tail-coverts pure white. Under parts light brown streaked with dark brown.

   Young Marsh-Hawk . . 15

2. Upper tail-coverts white, barred with brown, or largely brown barred with white.

   a. Throat white, often streaked with brown; breast solid brown; tail distinctly barred with brown.

   Adult Swainson's Hawk . 21

   b. Upper tail-coverts varied with rusty brown. Above and below dark brown varied with rusty. Tail white and gray with bars absent or indistinct. Feet feathered to toes.

   Dark phase of Ferruginous Rough-leg 23

   c. Above dark brown varied with rusty; below light rufous, belly barred with white; throat darker brown. Wings and tail conspicuously barred with white.

   Adult Red-bellied Hawk . 20

   d. Above dark brown varied with rusty; below white, heavily streaked and spotted with brown, the belly solid brown. Feet feathered to toes.

   Light phase of American Rough-leg 22

II. No white on upper tail-coverts.

1. Size very large (nearly 3 feet).

   a. Feet completely feathered; head always dark.

   Golden Eagle . . . 24

b. Feet with lower half featherless; head and tail white in adult.
Bald Eagle . . . 25

2. Size moderately large (18 to 24 inches).

a. Breast reddish brown; belly white, spotted with brown.
Dark phase of Swainson's Hawk 21

b. Continuously blackish above and below, or with lighter mottlings. Or with a solid patch of dark brown on belly only.
Dark phase of American Rough-legged Hawk . . 22

c. Continuously dark brown above and below.

a'. Tail brown barred with dark.
Dark phase of Swainson's Hawk 21

b'. Tail rich rusty red, dark barred.
Dark phase of Western Redtail 19

THE FALCON FAMILY, INCLUDING THE HAWKS AND EAGLES.

Birds of powerful build, generally of medium or large size, with strong, hooked bills, well developed feet and talons. Flight vigorous and rapid, and food flesh or insectivorous.

14. White-tailed Kite; *Elanus leucurus* (Vieill.).

Length sixteen and a half inches. Upper parts bluish gray; head, tail, and lower parts white; a large black shoulder patch and another on under lining of wings. Chiefly found sailing over marshy places in central California.

15. Marsh-Hawk; *Circus hudsonius* (Linn.).

Length of male about eighteen, of female twenty inches. The white upper tail-coverts are a characteristic mark of this species. Male in full plumage bluish gray above, generally mottled with brown; outer flight feathers brownish black; tail grayish with several brown bars. Under parts white, bluish on breast, spotted and barred with reddish brown. The immature male resembles the female, more or less perfectly mottled with rusty. The latter is brown, darker above, and pale below, where it is streaked with reddish brown. A generally distributed and common species about marshy places.

16. Sharp-shinned Hawk; *Accipiter velox* (Wils.).

A small but destructive species. Length of male eleven, of female thirteen inches. In adult plumage the upper parts are dark slaty (often tinged with brownish) and the under parts white, heavily barred crosswise with light reddish brown. The immature birds are dark brown above and white below, streaked lengthwise with brown. Tail with dark brown bars. Chiefly a winter visitant in California, although a few summer in the high Sierras.

17. Cooper's Hawk; *Accipiter cooperii* (Bonap.).

Almost exactly like the preceding except for its much larger size. Length of male fifteen and a half, of female nineteen inches (average). It differs in adult male in having the head blackish brown, in marked contrast to the slaty color of the back. Fairly common in the valleys in winter, and breeding in the Sierra Nevada Mountains, where, however, it does not seem to be abundant.

18. Western Goshawk; *Accipiter atricapillus striatulus* Ridgw.

Length of male twenty-two inches, of female twenty-four. Adult, top of head blackish brown; back deep lead color, sometimes nearly black and generally tinged with brownish; lower parts white, with fine irregular wavy cross-bars of slaty. A white line above and behind the eye. Tail dark, with four or five blackish bars. The immature birds are dark brown above, irregularly mottled with reddish brown and buff, especially about the head ; below white, with firm spots and stripes of dark brown. Tail distinctly barred and white tipped. An inhabitant of the dense forests of the Sierra Nevada Mountains.

19. Western Red-tailed Hawk; *Buteo borealis calurus* (Cass.).

Very variable in color. Length of male twenty-one, of female twenty-four inches (about the size of the preceding). Adult, above grayish brown or blackish brown, mottled with rusty; below varying from white or buff, more or less streaked with brown dusky markings, to dark blackish brown. The distinctive mark is the bright reddish brown tail, edged with buff or whitish and with one or more blackish bars. The immature birds are similar to the adult, but with the tail more distinctly and numerously barred, and grayish brown in color. The most abundant and widely distributed of the larger hawks of California, breeding everywhere in favorable places.

20. Red-bellied Hawk; *Buteo lineatus elegans* (Cass.).

This is the western variety of the red-shouldered hawk. Length of male eighteen, of female twenty inches. The prevailing shade of the adult is rich reddish brown, varied with dark brown; the wings and tail are blackish brown, varied with conspicuous white markings. The rusty shade is most continuous and pronounced on the shoulders and on the under parts, the belly being generally barred with white. The general color below is decidedly lighter than above. The tail has several narrow, distinct white bars. Immature birds are dark brown above, with the head and lower parts white, closely streaked with brown. This species appears to be resident chiefly in the interior valleys of central and southern California.

21. Swainson's Hawk; *Buteo swainsoni* Bonap.

Length of male twenty, of female twenty-two inches. Above dark brown, the forehead narrowly edged with white at base of bill. Upper tail-coverts white, barred with brown. Below brown, the throat generally varying from pure white to white finely lined with brown; belly varying from white to creamy buff or chestnut, with or without brown bars. This species is often melanistic, that is with a very dark brown plumage continuous above and below. An inhabitant chiefly of the wooded valleys of the State.

22. American Rough-legged Hawk; *Archibuteo lagopus sancti-johannis* (Gmel.).

Length averaging about twenty-two inches, the male generally smaller than this and the female often larger. This species is so variable in coloration that it cannot be distinguished in life with certainty from other large hawks. On close inspection the feathering of the front of the foot quite to the toes will distinguish this and the next species from all other hawks. In lightest plumage the head and neck are whitish in color, more or less streaked with dark; the back is gray and brown, the upper tail-coverts and base of tail are white, barred or streaked with brown, and the under parts are white, with dusky markings. The base of the tail is white, with bars of dark and light on the outer half; the inner edges of the flight quills are broadly white at the base, unbarred. The belly is frequently solid brown. From this plumage it varies to a very dark phase, sometimes becoming almost entirely black. A winter visitor in central and northern California, apparently never very abundant.

23. Ferruginous Rough-leg; *Archibuteo ferrugineus* (Licht.).

Size of preceding. A fine, strikingly marked species in full plumage. Upper parts bright reddish brown, varied with blackish brown and sometimes with white streaks, especially on the head. Below white, slightly barred with rufous on the belly. Legs bright reddish brown barred with black; tail white varied with gray and sometimes with faint bars of rufous. From this plumage it varies to a dark chocolate brown, varied with reddish brown, and with the tail

white. A rather rare winter visitor in the valleys and foothills.

24. Golden Eagle; *Aquila chrysaëtos* (Linn.).

Length, roughly, three feet. General color brownish black. The young have the inner half of the tail white. This species always has the feet completely feathered, while in the bald eagle, which is of about the same size, the lower half of the feet are naked. Locally fairly common and breeding both in the Coast Range and the Sierra Nevada Mountains.

25. Bald Eagle; *Haliæetus leucocephalus* (Linn.).

Length of male thirty-two, of female thirty-eight inches (average). Adult, head, neck and tail white; rest of body dark grayish or blackish brown. The young birds are nearly black in color, with some mottling of white. They change gradually to a brownish color mottled with white and buff, and not until the third or fourth year is the head completely white. Generally distributed in the wilder and more remote portions of the State, both on the coast and in the interior.

26. Prairie-Falcon; *Falco mexicanus* Schleg.

Length about eighteen inches, male averaging smaller and female larger than this. Upper parts grayish brown, the feathers with buffy or whitish edgings; under parts white, spotted with rather small brown darts, the sides barred with brown; throat pure white, bordered with a distinct line of brown; wing-quills and tail like back, the former with numerous large white

spots on inner webs, the latter white or buff tipped and barred. A rather rare species, breeding in both the Coast Range and Sierra Nevada Mountains, and south in winter through the valleys.

27. Duck-Hawk; *Falco peregrinus anatum* (Bonap.).

Size about as in preceding. Adult, above dark bluish gray in color, the feathers more or less spotted or barred with a darker shade. Under parts white or buffy, the breast with few or no markings, the sides and belly with blackish brown bars. Tail bluish gray, closely barred with black. Inner webs of wing-quills spotted with white. Immature birds are dark brown above, the feathers edged with light buff, and white or buffy below, streaked or spotted with dark brown. The broad blackish streak below eye, forming a border to the white throat, is a characteristic mark in both plumages. Irregularly distributed in California, occurring upon the islands of the southern coast and at various points in the interior; breeding in the mountains.

28. Pigeon-Hawk; *Falco columbarius* Linn.

Size small (length eleven inches). Upper parts of male bluish gray or slaty, varied with fine black lines. Tail slate, with three broad bands of black, and a white tip. Wing-quills dark and with numerous large white spots on inner webs. Under parts white, becoming buffy on breast and streaked with dark brown lines. The female has the bluish gray color of the back re

placed by dark brown. A rare species, probably breeding in the dense forests of the Sierra Nevada Mountains, and occasionally wintering in the valleys and foothills.

29. Desert Sparrow-Hawk; *Falco sparverius deserticolus* Mearns.

One of the smallest and most familiar of American falcons. Length of male nine, of female eleven inches. Top of head bluish gray, enclosing a patch of chestnut; back reddish brown in the female, barred with black; wings bluish gray or slaty, the quills brownish black with numerous white markings; tail reddish brown, white tipped, and with one broad black bar in the male, and with numerous narrow bars in the female. The sides of the head are conspicuously marked with lines of black and white below the eyes. Under parts white, buffy or rufous, spotted in the male with black and streaked in the female with dark brown. Abundant and generally distributed throughout the State.

30. American Osprey; Fish-Hawk; *Pandion haliaëtus carolinensis* (Gmel.).

Length twenty-three inches. Head and neck white, somewhat streaked with blackish; back dark brown more or less white edged; lower parts white. The female is similar to the male, but the breast is distinctly spotted with brown, while in the male the breast is nearly or quite free from markings. Found both on the coast and on the lakes and rivers of the interior in suitable places.

ARTIFICIAL KEY TO THE OWLS.

A. With ear tufts or horns.

I. Size very large (2 feet long); throat conspicuously white.

Dusky Horned Owl . . 39

II. Size medium (length 15 inches); ear tufts long and conspicuous.

Long-eared Owl . . . 32

III. Size small (length 9 inches).

1. Toes feathered; color mottled gray and brown.

California Screech Owl . . 37

2. Toes unfeathered.

Flammulated Screech Owl . 38

B. Head without ear tufts.

I. Size very large (length 28 inches).

Great Gray Owl . . 35

II. Size medium (length 16 to 19 inches).

1. Plumage brown, barred and spotted gray above and below.

Spotted Owl . . . 34

2. Plumage tawny, streaked with brown; throat white.

Short-eared Owl . . 33

3. Plumage fawn color (more or less white below), finely dotted with black and white. Prominent facial disks.

Barn Owl 31

III. Size small (length 7 to 9 inches).

1. Feet very long and slender, largely naked; an inhabitant of the ground.

Burrowing Owl . . . 40

2. Feet short and feathered.

a. Back with large white spots.
Saw-whet Owl . . . 36

b. Back with fine round white dots.
Pygmy Owl . . . 41

THE OWL FAMILY.*

Distinguished from all other birds by having the eyes directed forward instead of sidewise, thus giving the characteristic full-face view which we associate with these birds. The ear covering generally conspicuous. Most species are nocturnal in habits and all feed upon flesh and insects.

31. American Barn Owl; *Strix pratincola* (Bonap.).

Length sixteen inches. An unmistakable species on account of the very pronounced disk of feathers about the face. No ear tufts. General color tawny or fawn, darker above, sometimes almost or quite white below. The plumage is curiously dotted with black and white above and below; the yellowish ground color is overlaid with a soft tinge of gray. Note a squawk uttered on the wing. Nest in barns or ruins. An abundant resident of the valleys of California.

32. American Long-eared Owl; *Asio wilsonianus* (Less.).

* The barn-owl is classed in a family by itself, with certain technical differences from other owls, but for the sake of simplicity I have grouped it with the other genera.

Length fifteen inches. Ear tufts long and conspicuous. Above mottled brownish, grayish white and tawny; below similar in color but with numerous dusky cross-bars. Found in thickets along streams in the interior valleys and mountains. Apparently not very common in most parts of the State.

33. Short-eared Owl; Marsh-Owl; *Asio accipitrinus* (Pall.).

Size about as in preceding species. Ear tufts short and inconspicuous. General color streaked brown, buff and tawny; lighter below; throat white. Common winter visitant in the swamps of central California.

34. Spotted Owl; Western Barred Owl; *Syrnium occidentale* Xantus.

Length nineteen inches. No ear tufts. General color brown, buff and white, barred above and below, but the head and neck brown, spotted with white, and the bars everywhere more or less broken into spots. An inhabitant of the dense forests of the Sierra Nevada Mountains. Recorded by Belding as common in summer at Big Trees, Calaveras County.

35. Great Gray Owl; *Scotiaptex cinerea* (Gmel.).

Length twenty-eight inches. No ear tufts. Grayish brown above, lighter gray beneath, mottled on the back with some suggestion of bars, the breast streaked and the belly barred. A northern species occurring in northern California rarely or accidentally in winter.

36. Saw-whet Owl; *Nyctala acadica* (Gmel.).

Length seven and a half inches. No ear tufts. Brown above spotted with white; below white, streaked with pinkish brown. A rather rare resident of the northern Sierra Nevada Mountains.

37. California Screech-Owl; *Megascops asio bendirei* (Brewst.).

Length nine inches. Ear tufts visible. General color gray, browner above, grayer below, mottled and streaked with brownish and blackish lines. A common resident of the valleys and foothills, especially in the oak groves.

38. Flammulated Screech-Owl; *Megascops flammeolus* (Kaup.).

Length seven inches. General color gray, mottled with blackish streaks; below white, streaked with blackish; rufous edgings and white spots on the wing coverings. This species is technically distinguished from the preceding by the absence of feathers on the toes. A very rare species in the Sierra Nevada Mountains.

39. Dusky Horned Owl; *Bubo virginianus saturatus* Ridgw.

Nearly as large as the Great Gray Owl (length twenty-four inches) from which it can be immediately distinguished by its conspicuous ear tufts. This is the common hooting owl of the wooded regions. It is a dark western variety of the great horned owl. Mottled and barred brown, buffy, black and white. A white collar on the throat. In southern California another local race is recognized—the Pacific horned owl.

40. Burrowing Owl; *Speotyto cunicularia hypogæa* (Bonap.).

Easily recognized by its habit of frequenting open fields. No ear tufts. Length nine and a half inches. Above grayish brown, spotted with white; below whitish buff, barred with brown. The throat and breast white, interrupted by a brownish bar. The feet very long and slender for an owl, giving it a distinctive appearance. An abundant resident of the open valleys and foothills of the State.

41. Pygmy Owl; Gnome-Owl; *Glaucidium gnoma* Wagl.

Size diminutive. Length about seven inches. Back uniform dark brown, inclining to reddish or grayish, dotted with fine round white spots; under parts white, with streaks of blackish on the breast, and brown on the sides. A resident species in both the Coast Range and Sierra Nevada Mountains.

CUCKOO FAMILY.

Toes two in front and two behind. Two very different species.

42. Road-Runner; *Geococcyx californianus* (Less.).

A ground dweller, running with great rapidity and agility. Extreme length nearly two feet; body very slender and tail long. General coloration dull grayish and brownish, streaked with whitish and with iridescent gloss of green. Living in the sage-brush, and most abundant in southern California.

43. California Cuckoo; *Coccyzus americanus occidentalis* Ridgw.

An inhabitant of the trees and groves. Size about of a robin, rather longer and more slender. Above plain brown, below whitish, the tail-feathers tipped with same. Locally distributed in California, chiefly in the interior valleys.

KINGFISHER FAMILY.

44. Belted Kingfisher; *Ceryle alcyon* (Linn.).

A common bird everywhere along streams. Length about a foot, and rather stocky, with a big crested head, a long, sharp beak and very weak, small feet. Dark bluish above, pure white below, with a band of the color of back across breast. The sides of the female are rufous in color.

ARTIFICIAL KEY TO THE WOOD-PECKERS.

A. Back streaked, barred or spotted black and white.

I. Back with broad white streaks. Wings spotted with white.

1. Length 9 or 10 inches.
   Harris's Woodpecker . . 45

2. Length 6 or 7 inches.
   Gairdner's Woodpecker . . 46

II. Back with transverse bars of black and white.

1. Black patch on breast or breast barred like back; belly pale yellow; sides barred black and white.
   Female Williamson's Sapsucker 52

2. No black patch on gray breast.

a. Head black and white, scarlet on head of male.

Nuttall's Woodpecker . 47

b. Head grayish brown; belly yellow.

Gila Woodpecker . . 56

III. Back streaked or spotted black and whitish, the white sometimes tinged with pale yellow. Belly generally pale yellow; head and throat of male carmine red.

1. A black patch on breast more or less distinct.

Red-naped Sapsucker . . 50

2. No black patch; head and breast of adult male entirely carmine.

Red-breasted Sapsucker . 51

B. Back black, with lustrous tones of greenish or bluish, or dark brownish black.

I. Rump or upper tail-coverts white.

1. Throat-patch scarlet or white. Forehead black.

Male Williamson's Sapsucker 52

2. Chin black; a broad throat crescent of white tinged with sulphur yellow. Forehead white.

California Woodpecker . 54

II. Rump black like back.

1. Head white all around.

White-headed Woodpecker . 48

2. Head with yellow crown in male; sides barred black and white.

Arctic Three-toed Woodpecker 49

3. Head and belly deep crimson; a gray collar on neck.
   Lewis's Woodpecker . 55
4. Head crested with scarlet ; size very large.
   Pileated Woodpecker . 53

C. Back light brown, barred with narrow black lines ; shafts of wing and tail-feathers golden or scarlet.

I. Shafts golden ; lines on sides of throat bright red. No red on top of head.
   Gilded Flicker . . 57

II. Shafts scarlet; lines on throat scarlet.
   Red-shafted Flicker . . 58

WOODPECKER FAMILY.

Toes two in front and two behind; beak strong and sharp; tail-feathers stiff and bristly. Birds of this family habitually cling to the bark of trees and peck it for their insect food.

45. Harris's Woodpecker; *Dryobates villosus harrissii* (Aud.).

A member of the black and white woodpecker group of which we have three representatives. They are all without ornamentation save a scarlet patch on the head of the male. This species is black above, with a broad longitudinal streak of white. Below grayish white. Length nine or ten inches. This variety is confined to the northwest coast district, while a very closely and to the popular eye indistinguishable form—Cabanis's Woodpecker—is found in other wooded portions of the State.

46. Gairdner's Woodpecker; *Dryobates pubescens gairdnerii* (Aud.).

Very similar to the preceding in color and markings, but size much smaller. Length six to seven inches. Common in the foothills of central and northern California, frequenting especially the oaks. In winter, south through the valleys.

47. Nuttall's Woodpecker; *Dryobates nuttallii* (Gamb.).

Size about of the preceding or a trifle larger. Black and white markings of back transverse instead of longitudinal, hence this species is spoken of as belonging to the ladder-backed group. Tail barred black and white. Resident of the valleys and foothills; rare in the pine forests of the higher mountains.

48. White-headed Woodpecker; *Xenopicus albolarvatus* (Cass.).

An easily recognized species. Body black, head all around white; male with a scarlet band on back of head. A common form in the Sierra Nevada Mountains.

49. Arctic Three-toed Woodpecker; *Picoides arcticus* (Swains.).

Back black; under parts white, the sides barred with black. A white stripe below the eye, and outer feathers of the tail white. Male with a yellow crown patch. One of the rarer species breeding in the northern Sierra Nevada Mountains.

50. Red-naped Sapsucker; *Sphyrapicus varius nuchalis* Baird.

An intermediate form between the yellow-bellied sapsucker of the eastern states and the red-breasted sapsucker of the Pacific Coast. Red of the throat spreading to sides of the head in adult male, and female with throat more red than in the eastern bird, but less red than in the following species, which it otherwise resembles. In California only on the eastern slope of the Sierra Nevada Mountains.

51. Red-breasted Sapsucker; *Sphyrapicus ruber* (Gmel.).

Length eight and a half inches. Entire head and breast carmine red in adult male. Back streaked or spotted black and whitish, the white often tinged with yellow. Belly pale yellowish; wings white with a broad white patch on the upper wing and white spots on the flight-feathers. Immature birds show every gradation from a brownish gray bird, but some yellow tinge nearly always apparent. Breeds in the mountains and south in winter through the valleys.

52. Williamson's Sapsucker; *Sphyrapicus thyroideus* (Cass.).

An exceedingly showy species in the adult male plumage. Glossy black; belly clear yellow; throat-patch scarlet. Upper tail-coverts, bar on wing-coverts, and two stripes on face, one back of eye and a parallel one below it, white. The female differs greatly. Body continuously barred crosswise with black and white. A

black patch on breast; belly yellow; head brown. A striking species of the Sierra Nevada Mountains.

53. Pileated Woodpecker "Log-Cock;" *Ceophlœus pileatus* (Linn.).

Immediately distinguishable from all other California woodpeckers by its immense size and its crest. General color brownish black or dark slaty. Head crested with scarlet; the throat, a double stripe on face and lining of wings white. The red is much restricted in the female, being confined upon the head to the crest, and the characteristic red streak on the cheek of the male being absent. An inhabitant of the remoter mountain regions. Length about one and a half feet.

54. California Woodpecker; *Melanerpes formicivorus bairdi* Ridgw.

Related to the red-headed woodpecker of the eastern states, but colors very different. General color of back black, with glossy bluish luster. Rump and belly white, the sides streaked with black; a breast patch of black ending in a black fringe on belly. Forehead white; chin black, with a white patch encircling it, this generally tinged with sulphur yellow. A crimson patch on the top of the head restricted in the female. A showy and abundant species. Length nine inches.

55. Lewis's Woodpecker; *Melanerpes torquatus* (Wils.).

Coloration peculiar. Size large. General color greenish lustrous black. Head and face deep

crimson. Collar around back of neck gray; body gray below becoming reddish on belly, where it gradually deepens to a pinkish red or crimson.

56. Gila Woodpecker; *Melanerpes uropygialis* (Baird).

A Mexican form straying into the southeastern corner of the State. Head gray; back barred with black and white. Under parts brownish gray; belly yellowish. Crimson collar in the male.

57. Gilded Flicker; *Colaptes chrysoides* (Malh.).

A Mexican form straying into southeastern California. In general like the common flicker or highhole of the east, with golden shafts, but with the mustache red instead of black, and no red on top of the head.

58. Red-shafted Flicker; *Colaptes cafer* (Gmel.).

A very abundant and characteristic bird in all California woodlands. The western representative of the flicker, with which it commonly hybridizes in many localities. Large in size, a foot or more in length. Large white rump-patch; the shafts of wing and tail-feathers bright red. A conspicuous black crescentic patch on breast. Mustaches scarlet in the male. Throat ash; under parts pale vinaceous, with round black dots; upper parts pinkish brown, barred with black.

GOATSUCKER FAMILY.

Mottled brown birds, largely nocturnal or crepuscular in habits, with very weak bills and wide opening mouths, surrounded with bristles. Insectivorous in habits, catching their food while on the wing.

59. California Poorwill; *Phalænoptilus nuttalli californicus* Ridgw.

The western representative of the whippoorwill. Seldom seen abroad by day. An inhabitant of the mountain forests. Plumage intricately mottled with soft shades of gray and brown, with a peculiar effect of frosting. Conspicuous throat-patch and tips of tail-feathers white, the latter often tinged with buffy. Breast blackish brown. Tail square.

60. Western Nighthawk; *Chordeiles virginianus henryi* (Cass.).

As in the poorwill the plumage is mottled and barred with intricate patterns of black, gray and brown. Throat bar of white. The nighthawk may be recognized from the poorwill by the conspicuous bar of white or buffy on the wing, and by the emarginate tail, with a white subterminal bar. It is less strictly nocturnal and may frequently be seen flying abroad, especially toward evening, cleaving the air in great swoops, and uttering its high, single, slightly inflected note while on the wing. The western nighthawk differs from the eastern bird in its paler shade of coloration.

THE SWIFT FAMILY.

Formally confounded with the swallows. These birds are almost constantly on the wing, flying with great rapidity, and with rapid vibrations of the wings, darting hither and thither with much impetuosity. Bill and feet very small and weak; wings very long and powerful. Insect feeders.

61. Black Swift; *Cypseloides niger borealis* Ridgw.

Size large. Coloration uniformly dark, blackish or grayish brown.

62. Vaux's Swift; *Chætura vauxii* (Towns.).

The western representative of the chimney swift. Size rather small, but little over four inches long. General coloration dusky grayish, throat very pale, the rump and upper tail-coverts lighter than the back. Generally flies abroad at evening, and especially common about streams in the redwoods; its general appearance is quite bat-like.

63. White-throated Swift; *Aeronautes melanoleucus* (Baird).

Size nearly equaling that of the black swift. Length seven inches or a little less. General color above blackish brown; this also on the under tail-coverts. Throat and breast white; a patch of same on flanks and on the wings. Nesting on inaccessible cliffs in the mountains. Flies abroad by day.

ARTIFICIAL KEY TO MALE HUMMING-BIRDS.

A. Crown with special ornament in contrast to back.

I. Crown and throat patch bluish or purplish lilac.

Costa's Hummingbird . . 65

II. Crown and throat patch lilac crimson; size larger than the preceding.

Anna's Hummingbird . . 66

B. Crown without special ornaments in either sex.

I. Sides white or green.

1. Throat velvety black, bordered with violet.

Black-chinned Hummingbird . 64

2. Throat violet, iridescent feathers springing from a white ground.

Calliope Hummingbird . . 69

II. Sides rufous or cinnamon.

1. Back chiefly rufous.

Rufous Hummingbird . . 67

2. Back chiefly golden green.

Allen's Hummingbird . . 68

THE HUMMINGBIRD FAMILY.

The smallest of birds, with long slender bills, very weak feet, and buzzing wings, giving the bird much the appearance of an insect. Ornamented

with throat-patches or gorgets of shimmering iridescent colors. The following specific characters refer to the adult male bird. In all but one of the six species commonly found in California the back is golden green and the belly whitish or grayish.

64. Black-chinned Hummingbird; *Trochilus alexandri* Bourc. & Muls.

The western representative of the eastern ruby-throated hummer. No special crown ornament. Gorget velvety black, bordered with iridescent violet.

65. Costa's Hummingbird; *Calypte costæ* (Bourc.).

Head, like gorget, ornamented with steel blue or violet iridescence. Small in size. Southern California, San Diego and Colorado Desert.

66. Anna's Hummingbird; *Calypte anna* (Less.).

Head, like gorget, ornamented with purplish red iridescence. Large in size. An abundant resident over nearly all the State.

67. Rufous Hummingbird; *Selasphorus rufus* Gmel.

Back largely cinnamon red, with but a trace of greenish. Head plain greenish. Gorget coppery red; sides cinnamon rufous; belly white. Size small. Apparently resident in the south, but breeds more commonly to the northward of California.

68. Allen's Hummingbird; *Selasphorus alleni* (Hensh.).

Very similar to the preceding, females especially alike. Rufous on back largely restricted, the golden green prevailing. The tail-feathers of the rufous hummingbird are very broad, and the second from the middle has a conspicuous notch. In the Allen's hummingbird the tail-feathers are very narrow, the outermost pair being fine and sickle-shaped. A common summer resident over much of the State, but often confounded with the preceding.

69. Calliope Hummingbird; *Stellula calliope* Gould.

Size very small. No crown ornament. Gorget of narrow elongated feathers, with white bases and metallic violet or lilac tips. Below white, the sides glossed with green. A summer resident of the Sierra Nevada Mountains.

TYRANT FLYCATCHER FAMILY.

Mostly small, dull colored birds, although two of our species are larger and have bright crown-patches. Colors generally brownish or olive-gray or greenish, characteristically unstreaked. Bill broad and flattened, with large bristles at its base. Feet small. Most species sit very quietly in repose, fluttering from their perches into the air after flying insects.

70. Kingbird; *Tyrannus tyrannus* (Linn.).

This common eastern bird is rare in California, only occasionally straying across the Sierra

Nevada Mountains within our limits. It may be known from the next species by the absence of yellow from the plumage, this color being replaced by white.

71. Arkansas Kingbird; Western Kingbird; *Tyrannus verticalis* Say.

A noisy, pugnacious species, aptly called the tyrant flycatcher. Length eight or nine inches. The back is olive-gray; the head and breast clear ashy; the under parts bright yellow. The tail is black with the outer pair of feathers white on outer web; crown with a concealed patch of scarlet, which is wanting in the young. A common summer resident over most of the State.

72. Cassin's Kingbird; *Tyrannus vociferans* Swains.

Very similar to preceding, from which it may at once be distinguished by the absence of the white outer web of the outer tail-feathers. These feathers are sometimes narrowly edged with whitish or grayish, but never completely so as in the Arkansas kingbird. A southern species, apparently rare north of Los Angeles County.

73. Ash-throated Flycatcher; *Myiarchus cinerascens* Lawr.

Rather similar in general appearance to the kingbirds, but no crown-patch and tail and wings largely edged with rufous. Back olive-brownish;

throat pale ashy; the under parts pale yellow. A summer resident over the greater part of the State.

74. Say's Phœbe; Say's Pewee; *Sayornis saya* (Bonap.).

A very plainly colored species; general color brownish gray, above and below, lighter on breast; the belly cinnamon rufous and the wings edged with gray. This species must not be confounded with the California brown towhee, which resembles it in color. The towhee is an inch longer, and has a very pale throat bordered with dusky streaks. In habits the two birds are entirely different, although both are frequently seen on or near the ground. Say's phœbe flirts its tail to emphasize its call-note, after the manner of other flycatchers. In all respects it is a typical flycatcher, while the brown towhee is a sparrow. It is seldom very abundant and generally found in California during the winter months.

75. Black Phœbe; Black Pewee; Black-headed Flycatcher; *Sayornis nigricans* (Swains.).

General color slaty black, darkest on head and breast. Under parts white, separated by a sharp, V-shaped line of demarkation from the breast. A fine edging of whitish on outer tail-feathers. This species is strikingly like the Oregon junco in general coloration. In the latter bird the white of the tail-feathers is much more conspicuous, the back is browner, and the sides are pinkish in tone. Again, the habits are wholly different, the one bird being a typical flycatcher,

the other a sparrow. The black phœbe is a familiar breeding bird over the greater part of the State, nesting on ledges of outhouses, and it is always solitary or in pairs.

76. Olive-sided Flycatcher; *Contopus borealis* (Swains.).

A plain olive-brownish bird, darker on the back, grayer below. It is a difficult species to recognize from the wood pewee, but the concealed white flank tufts are an infallible mark of identification if they can be seen. The white line down the center of the under parts is more sharply defined in contrast to the brownish gray of the sides, and this latter color is more streaked in appearance. It is a summer inhabitant of the woodlands of California, solitary in habits and frequently uttering its loud, pensive call.

77. Western Wood Pewee; *Contopus richardsonii* (Swains.).

Smaller than the preceding. Length about six and a half inches. Faint whitish wing bands. Coloration olive-brown, darker on head, paler below. Throat and belly white, the latter faintly tinged with yellow. A summer resident, generally distributed in the woodland.

78. Western Flycatcher; *Empidonax difficilis* Baird.

With this bird we come to the group of little olivaceous flycatchers, which are so much alike that the average observer will find great difficulty in distinguishing them. They may be readily

told by their characteristic flycatcher build—the large head, broad, flattened bill, and weak feet, —in connection with their small size (length from five to six inches) and by their general olive-brownish or grayish color. The western flycatcher is one of the commonest of the group, being a generally distributed summer resident over nearly the entire State. Color above dull olive-brown, below dusky yellowish, a circle of the same about the eye, and pale bars on the wings. Eggs white, dotted with brown. Nest on mossy bank by a stream.

79. Traill's Flycatcher; *Empidonax traillii* (Aud.).

Color above olive-brown, grayer on head, below white, grayish on sides and pale sulphur yellow on abdomen. Pale wing bands. A generally distributed species in suitable localities.

80. Hammond's Flycatcher; *Empidonax hammondi* (Xantus).

Color above olive-gray, neck markedly gray, below dark grayish, or olive, darkest on breast. Small in size and bill very narrow. Eggs white. Apparently rare in California, breeding to the northward.

81. Wright's Flycatcher; *Empiaonax wrightii* Baird.

Color as in preceding, but lighter gray, with throat often whitish. Outer edge of outer tail-feathers paler, often whitish. Eggs white. A common breeding bird in the mountains. Winters in the southern part of the State.

82. Vermilion Flycatcher; *Pyrocephalus rubineus mexicanus* (Scl.).

A brilliant straggler from Mexico. Back uniform brown; wings blackish brown; head and lower parts vermilion. The female resembles a bleached out male, with but a trace of the gaudy coloring. Size of the preceding group or a trifle larger.

THE LARK FAMILY.

83. Horned Lark; *Otocoris alpestris* (Linn.).

An inhabitant of open fields and wind-swept meadows, where they run instead of hop upon the ground. The adult males have black horn-like tufts of feathers extending backward over the eyes. The forehead is white, the top of the head black; there is a black patch immediately below the eye, and another larger one on the breast. The back is brown, generally vinaceous in tone and more or less streaked. The breast is white, and the throat and face between the black marking white, more or less tinged with yellow, this sometimes becoming a strong sulphur color.

There is but one species of horned lark in North America, divided into a number of race forms in various localities. In southern California the Mexican horned lark is the prevailing form, a larger and less brilliantly ruddy form than the ruddy horned lark, which is found in the Sacramento Valley. In northern California the streaked horned lark is the characteristic form. As its name implies it is more streaked on the back, and the white of the breast is tinged with pale yellow.

THE FAMILY OF CROWS, JAYS AND MAGPIES.

84. American Magpie; *Pica pica hudsonica* (Sab.).

A characteristic and easily recognizable bird of the desert region east of the Sierra Nevada Mountains. Length about a foot and a half; tail long and tapering from the central feather. Head, back and breast smoky black; wings and tail iridescent purplish and greenish black. Shoulder patches and belly white; bill black.

85. Yellow-billed Magpie; *Pica nuttalli* Aud.

Almost identical with the preceding, but with a yellow bill. Common in the interior valleys of the State.

86. Stellar's Jay; *Cyanocitta stelleri* (Gmel.).

A noisy bird of the pines and redwoods; large, about a foot in length. Crested; fore part of body dark sooty, turning into a dark blue on remaining portions. On the wings and tail the blue is brighter and barred with blackish. Stellar's jay is the western representative of the eastern blue jay, from which it differs greatly, however. It is darker along the northwest coast of California and from there northward, representing the typical Stellar's variety. In the remaining portions of California, where it is everywhere abundant in the mountains, it has a number of blue streaks on the forehead and about the face, and the general color is rather lighter. This variety is known as the *Blue-fronted Jay*.

87. California Jay; *Aphelocoma californica* (Vig.).

An exceedingly common bird in the valley regions of the State and in the foothills. Its distribution seems to be coincident with the deciduous trees as that of the preceding bird is of the conifers. Uncrested. General color of the head and back bright blue. Middle of back light grayish brown. A white line over the eye. Breast whitish, bordered with an irregular outline of bluish. Otherwise the under parts are dull whitish gray.

88. Santa Cruz Jay; *Aphelocoma insularis* Hensh.

Similar to the preceding, but under tail-coverts blue instead of white, and shade of coloration slightly different. An interesting species confined to Santa Cruz Island.

89. Oregon Jay; *Perisoreus obscurus* (Ridgw.).

The western representative of the Canada jay. Found only in the northern Sierra Nevada Mountains in California. General coloration brownish gray; no blue markings. Forehead and entire lower parts white or grayish white. A smoky blackish hood, bordered on the back with a whitish collar; back brownish or grayish.

90. American Raven; *Corvus corax sinuatus* (Wagl.).

Size large, length nearly two feet; bill very stout. Coloration entirely glossy black. Found generally in places remote from civilization—along the sea coast and on the interior plains.

91. American Crow; *Corvus americanus* Aud.

Smaller, a little over a foot and a half. The feathers of the throat are not long and stiff as in the raven, but in general appearance the two birds are very similar. Abundant in certain sections of the State, wholly wanting in others.

92. Clarke's Nutcracker; *Nucifraga columbiana* (Wils.).

A bird of the high Sierra Nevada Mountains. Length over a foot. Gregarious and noisy in habits. Bill long and sharply pointed. Above gray, the wings black, banded with white; the tail white, except the central feathers, which are black; below gray.

93. Pinon Jay; *Cyanocephalus cyanocephalus* (Wied.).

Length eleven inches; bill long, sharp. General color plain gray, with a slight bluish tinge, generally brightest on wings, tail and sides. Head all around blue, except throat which is white, streaked with pale gray. A bird of the high Sierras, more common on the eastern slope.

THE BLACKBIRD, ORIOLE AND STARLING FAMILY.

Birds of moderate size (generally larger than a sparrow and smaller than a pigeon) with sharp, cutting bills and usually strongly marked coloration in the males.

94. Yellow-headed Blackbird; *Xanthocephalus xanthocephalus* (Bonap.).

Head all around and breast bright yellow; in full-plumaged males the yellow sometimes wanting or obscure on head. Wing-patch white, the rest of the body black. Female brown, with dull yellow throat-patch. Length of male ten inches or more, female smaller. Common in restricted marshy regions, both in the interior valleys and in the mountains.

95. Red-winged Blackbird; *Agelaius phœniceus* (Linn.).

The male black, strikingly ornamented with scarlet shoulder patch. This is bordered with a buffy or pale brownish band. The female streaked brownish and white. Length about eight and a half inches. Breeds to the north of California and on the eastern slope of the Sierras, wintering in California.

96. Bicolored Blackbird; *Agelaius gubernator californicus* Nelson.

Almost identical with the preceding, but the buff border to the epaulets narrow or obscure. The common red-winged blackbird of California, breeding in great numbers in marshy places.

97. Tricolored Blackbird; *Agelaius tricolor* (Nutt.).

Similar to the preceding, but black more glossy bluish. The red shoulder patch is of a deeper carmine hue and bordered with white. In winter the back is mottled with brown and the white of the shoulders becomes buff.

98. Western Meadowlark; *Sturnella magna neglecta* (Aud.).

Back mottled and streaked gray, brown and buff; a paler line down the top of head and a second over the eye. Below yellow, with a black crescent on breast. Sides gray, streaked with brown. Very common and widely distributed. Length over ten inches; bill long and sharp.

99. Scott's Oriole; *Icterus parisorum* Bonap.

Extremely rare north of the Lower California boundary. Head, back, and breast, black; the rest of the body bright yellow, except the white wing markings. Basal half of tail yellow, terminal half black.

100. Arizona Hooded Oriole; *Icterus cucullatus nelsoni* Ridgw.

A beautiful slender bird with a fine, sharp beak. Length about seven inches. General color of male bright orange yellow, a black mask in front of eyes and below extending in a patch on throat; a band across the back, tail and wings, black, the latter with two white bars. Young males paler yellow below and back olive-brown; tail yellowish. Females with little or no black —below dull yellowish, above olive-brownish. Southern California, commonest south of Los Angeles.

101. Bullock's Oriole; *Icterus bullocki* (Swains.).

The western representative of the Baltimore oriole. One of the most brilliant and vivacious of our song birds. Length about eight inches. Bill

much stouter than that of the Arizona hooded oriole, and throat-patch much restricted in comparison. Fore part of back, top of head, and a narrow throat-patch, black. A large white wing-patch; tail black and yellow. Rest of body varying from yellow to intense orange red, this color extending up the sides of the head. Young males olive-brownish on back and olive-yellowish on breast, with a small throat-patch of black. Females grayish brown above and pale gray below, with but a trace of yellow. An abundant summer resident both in the valleys and mountains.

102. Brewer's Blackbird; *Scolecophagus cyanocephalus* (Wagl.).

Length nine inches. Glossy black, with bluish and greenish iridescence. Female duller, brownish black. The only pure blackbird of California and everywhere abundant and gregarious.

THE FINCH AND SPARROW FAMILY.

Small or medium-sized seed-eaters, with stout conical bills and strong feet.

This is the largest group of North American birds and has many representatives in California. They are usually dull-colored birds although there are some notable exceptions to this rule. With the English sparrow in mind as a type of the family, there should be no difficulty in distinguishing most of the members of the group.

103. Western Evening Grosbeak; *Coccothraustes vespertinus montanus* (Ridgw.).

Length about eight inches. An abnormal sparrow with an immensely thickened bill. Coloration striking. General color dull yellowish olive; line above eye yellow; forehead, shoulder patch and rump, same. Tail black; wings black and white. Female light gray below, brownish gray above, with a trace of yellow; wings and tail black and white. Breeds in the high northern Sierras. An erratic and generally rare winter visitant in the valleys.

104. California Pine Grosbeak; *Pinicola enucleator californica* Price.

General coloration crimson and gray. Bill stout; size large far a sparrow, eight inches or more in length. The brilliancy and extent of the red varies with age and season, but in general this coloration is on the fore parts of the body, the belly and under tail-coverts being gray. The wings are dull blackish brown with obscure wing bars. Female dull gray with a little yellow on head and rump. Breeding in the high Sierras and seldom found in the valleys even in winter.

Purple and House Finches. There are three representatives of the purple finch family found in California. In all the general coloration is reddish on the forepart of the body and grayish or brownish behind, more or less streaked. They are related to the pine grosbeak group, but much smaller (birds the size of an

English sparrow), and the bill, although stout, is not so thickened. The female and young are streaked brownish and grayish.

The three species are quite similar but may be distinguished by the following characters.

105. California Purple Finch; *Carpodacus purpureus californicus* Baird.

Medium in size, length about six inches. Bill comparatively sharp and slender. Head, throat and breast of male, bright rosy red. Back brown with a pinkish tinge, and rump brighter reddish. Belly and under tail-coverts white, unstreaked.

106. Cassin's Purple Finch; *Carpodacus cassini* Baird.

Larger in size than the preceding, length nearly seven inches. Bill comparatively sharp and slender. Colors duller than in preceding, the breast pale purplish pink, the head alone bright rosy red. Summer resident of the Sierras, more common on eastern slope.

107. House Finch; *Carpodacus mexicanus frontalis* (Say).

Small in size (under six inches). Bill thicker and blunter. Breast like head, throat and rump, crimson in full-plumaged bird. The most abundant bird of the valleys of California. Does not occur in the high Sierras. On Santa Barbara Island a race form, the San Clemente House Finch, has been recognized.

108. American Crossbill; *Loxia curvirostra minor* (Brehm).

Cannot be mistaken on account of the overlapping tips of the beak. General color of male reddish, streaked with dusky below, and wings dusky. Female yellowish olive and dusky. Breeds in the high northern Sierras and to the northward. Winters in the mountains of California.

109. Gray-crowned Leucosticte; Rosy Finch; *Leucosticte tephrocotis* Swains.

Length about six inches. Wings long. Ground dwellers of the high mountains, often frequenting patches of snow. Forehead black; top of ead light gray; fore parts of body light chocolate brown with dusky or grayish edgings; hind parts of body pale rose color or pinkish. A northern species breeding in the high Sierras; in winter south in the mountains and foothills.

110. Redpoll; *Acanthis linaria* (Linn.).

A small streaked bird (five and a half inches long); dusky, white and brownish in color, with the crown crimson and the throat blackish; the breast and rump are rose red in the full-plumaged male. Northern California in the mountains during the winter months.

111. Willow Goldfinch; Western American Goldfinch; *Astragalinus tristis salicamanus* (Grinnell).

The goldfinches are small birds, usually in flocks except when breeding. The colors of the group

are yellow, greenish, gray and black. They have characteristic twittering call-notes. The male willow goldfinch in summer is bright yellow, with black cap, wings and tail, the two latter marked with white. In winter the plumage changes to a pale brownish and yellowish, lighter below, with black wings and tail as in summer. The female in summer is olive above and dusky yellow below. Tolerably common resident in California, but locally distributed. Indistinguishable except in minute details from the American goldfinch.

112. Arkansas or Green-backed Goldfinch; *Astragalinus psaltria* (Say).

Length four and half inches or less. Cap black; back bright olive-green; wing black with white bar; under parts bright yellow. Female olive-brownish tinged with green above, and olive-gray tinged with yellow below. An exceedingly abundant resident of the valleys and foothills.

113. Lawrence's Goldfinch; *Astragalinus lawrencei* (Cass.).

Length four and a half inches or more. Cap black; back grayish brown tinged with yellow; wing black edged with yellow; throat black; breast yellow; belly yellow. Young gray, darker above, the wing-feathers edged with yellow. Generally distributed throughout the valleys and foothills; rare about San Francisco Bay.

114. Pine Siskin; Pine Finch; *Spinus pinus* (Wils.).

An undeveloped goldfinch in which the yellow is just beginning to appear on the body and the feathers of the wings and tail. Everywhere streaked brownish and grayish; base of tail and edges of wing-feathers yellow. Breeds in the mountains of both the Coast Range and the Sierra Nevada. In winter south irregularly in flocks.

115. English Sparrow; European House Sparrow; *Passer domesticus* Linn.

The English sparrow was unfortunately introduced into California some years since, and is rapidly spreading. Any measures which will serve to check its increase will be of benefit to our native birds. Length about six inches. Top of head gray; sides of head chestnut; back brown, streaked with black; lower parts dull grayish; a conspicuous black patch on throat and upper breast. Female with black patch wanting, and with colors less bright and pure. Abundant in towns and cities about San Francisco Bay, at Stockton, Sacramento and other points in the Sacramento Valley.

116. Western Vesper Sparrow; *Poœcetes gramineus confinis* Baird.

An obsurely marked sparrow, streaked above and below. The novice will be much puzzled with many birds of this family with a general streaked grayish and brownish coloration, whitish below. The marks by which the vesper sparrow may be told are the white outer tail-feathers and the

chestnut patch on the shoulder. Length about six inches. A winter visitor in the interior valleys of California. Birds from central California are referred to another climatic race known as the Oregon Vesper Sparrow. The differences between these races and the eastern bird are very slight.

Savanna Sparrow Group. Sparrows of the open fields and seaside, with rather long, sharp beaks, short tail, general streaked coloration, and often some yellow about face or over the eye. There are several climatic races found within the limits of California.

117. Sandwich Sparrow; *Ammodramus sandwichensis* (Gmel.).

This type species of the group is brownish gray above, with a yellow line over the eye and a light gray line down the middle of the head, separating two darker stripes; breast whitish, streaked with brown. This northern race, which breeds in Alaska, is large in size (about six inches long) and has a large bill. It is found in the mountainous portions of California during the winter months. The Western Savanna Sparrow (*Ammodramus sandwichensis alaudinus* (Bonap.) is the common race inhabiting the fields of California, especially in the interior districts. It has a slightly browner shade of coloration than the preceding bird. Bryant's Marsh Sparrow (*Ammodramus sandwichensis bryanti* Ridgw.) is a decidedly darker form, with a more distinct yellow line over the eye. It is the variety which breeds in the vicinity of San Francisco Bay.

118. Belding's Marsh Sparrow; *Ammodramus beldingi* Ridgw.

Darker than Bryant's sparrow, with heavier and broader markings, and with the stripe of light above the eyes and down the middle of the head obscure or wanting. Marshes of southern California, from Santa Barbara into Lower California.

119. Large-billed Sparrow; *Ammodramus rostratus* Cass.

This bird belongs in the same group with the preceding birds. It is a comparatively rare bird and can only be told by noting its differences from other members of the group. The bill is decidedly larger. There is no yellow on the head or wings, nor any stripe down the middle of the crown. The general color is brownish gray above and white below, everywhere streaked with indefinite lines of brown. Throat white, unstreaked. Wintering from Los Angeles southward and breeding chiefly in Lower California.

120. Western Grasshopper Sparrow; *Ammodramus savannarum perpallidus* Ridgw.

In general like other members of the savanna sparrow group. Crown blackish brown, with a distinct line down the center. A yellow spot between the bill and eye, and a yellow spot on edge of wing. Breast, unlike all the preceding species, yellowish or buffy, unstreaked save for a few lines on the sides. Above grayish, pale reddish brown and blackish. Breeds in southern California on the coast, and northward chiefly in the interior.

121. Western Lark Finch; *Chondestes grammacus strigatus* (Swains.).

An easily distinguished sparrow of rather large size (length about seven inches). Its characteristic markings are the broad white tips of the long tail-feathers and the curious lines of chestnut, white and black on the head. Above light grayish brown, narrowly streaked with blackish brown. Crown and sides of head chestnut, with a line of grayish or white on top of head. A narrow line of black on each side of throat and a small irregular black patch on the breast. Otherwise, under parts white. A generally distributed summer resident of California, wintering in the interior valleys and in the southern parts of the State.

122. White-crowned Sparrow; *Zonotrichia leucophrys* (Forst.).

This species is the first of a restricted group of rather large sparrows, all with distinctive head markings. Length nearly seven inches. The adult birds have a clear white crown-patch, bordered by distinct bands of black. A second line of white bounds the black, starting back from the eye, while below this is another narrow line of black. Coloration in general ashy, darker above, brownish on rump, and middle of the back streaked with brown; below whitish ash, paler on throat, browner on sides. The immature birds have the black replaced by brown.

There are three race forms of the white-crowned sparrow, all of which are found in California. The typical bird of the eastern states is as de-

scribed above. It is a summer resident of the high Sierras, migrating southward chiefly on the eastern slope. The Intermediate Sparrow (*Zonotrichia leucophrys intermedia* Ridgw.) is practically identical with the preceding, save for the marking of the lores. The lores are that portion of a bird's face between the eye and the upper mandible. This spot is black in the typical eastern bird and whitish or grayish in the intermediate sparrow. It requires a close observer to detect a difference so trivial. Breeding north of California, south in autumn through the Sierras, chiefly to the interior valleys.

Gambel's Sparrow ; *Zonotrichia leucophrys gambeli* (Nutt.).

The lores are as in the preceding species, but the ashy tone of the back is replaced by olive-brownish, streaked with brown and blackish markings. The under parts are brownish gray instead of ashy. Inner edge of wing yellow. This is the common variety of the coast valleys and mountains. In winter it is one of the most abundant birds about San Francisco Bay, although comparatively few remain to breed.

123. Golden-crowned Sparrow ; *Zonotrichia coronata* (Pall.).

Forehead and stripes on sides of head black; top of head dull yellow, bordered by ashy behind. (These colors become more brilliant yellow and almost pure white at the commencement of the breeding season, while in immature birds the black of the crown is replaced by brownish, and the ashy is wanting or obscure.)

In other respects the coloring of this species is practically the same as of the preceding bird. The two species associate in flocks during the winter and can only be distinguished by close attention to their head markings and songs. Common winter resident in the valleys and foothills, becoming rare in the extreme southern part of the State.

124. Western Chipping Sparrow; *Spizella socialis arizonæ* Coues.

Almost identical with the familiar chippy or hair bird of the eastern states, of which it is a mere variety. Length five inches or more. Forehead black or blackish; crown bright rufous, distinctly contrasted with neck and back; back streaked brown, gray, and black; breast plain ashy, unstreaked. There is a line of white or grayish over the eye and a fine black border below this. Song a uniform sustained trill. A common summer resident both in the valleys and mountains, especially in central and northern California. This bird must not be confounded with the rufous-crowned sparrow (No. 130) with which it should be compared.

125. Brewer's Sparrow; *Spizella breweri* Cass.

An exceedingly plain little sparrow. Length of preceding or a trifle less. No special markings anywhere. Above streaked grayish brown and dark brown; below dirty white. An inhabitant of the sage-brush plains of the interior valleys and mountains.

126. Black-chinned Sparrow; *Spizella atrigularis* (Cab.).

Belonging to the chipping sparrow group, and similar in size except for the long tail. Length six inches. Head grayish; back rusty brown, streaked with black; chin and upper throat black; breast grayish. Interior sage-brush regions of southern California—Los Angeles, San Bernardino and San Diego Counties.

127. Slate-colored Junco; "Snow-bird;" *Junco hyemalis* (Linn.).

This is the familiar little "snow-bird" (not the snow bunting) of the eastern states. It is for the most part plain slate color, sharply contrasted across the breast with the white of the under parts. The outer tail-feathers are conspicuously white in contrast to the dark color of the others. The typical eastern bird has been found in California only as a rare straggler, but several race forms, differing only in a shade of color or of size, occur in California. The Pacific Coast forms have the sides tinged with pinkish buff, and the middle of the back more or less brown. One of our commonest winter visitants from the north is the Oregon Junco *Junco hyemalis oregonus* (Towns.). Sides of body dull pink, and head and back not sharply different in color. A winter visitor in the valleys of California.

Thurber's Junco; *Junco hyemalis thurberi* Anthony.

Distinguished from the Oregon junco by having almost no pinkish on the flanks, and the head

and throat black, sharply defined in contrast to back. Sierra Nevada Mountains and deserts and southern coast ranges of California.

Point Pinos Junco; *Junco hyemalis pinosus* Loomis.

Vicinity of Monterey and Santa Cruz. A very bright chestnut back. Head and throat dull slate.

128. Desert Sage Sparrow; *Amphispiza hilineata deserticola* Ridgw.

Length five and a half inches. The sage sparrows are pallid desert species, colored chiefly grayish brown, black and white, with few or no streaks. The desert variety of the black-throated sparrow has the upper parts colored plain grayish ar ashy brown; below white; sides ashy; a large throat-patch jet black; in full plumage the face is also black. A white line extends over the eye and a second borders the throat; tail black, white tipped. This species frequents the region east of the Sierra Nevada Mountains and the Colorado Desert.

129. Bell's Sparrow; *Amphispiza belli* (Cass.).

Length five and a half inches or a little over. Above dark grayish brown, grayer on head, the back with few or no streaks; below white, the sides light brownish and streaked; white throat, bordered with blackish streaks, and a spot of same on the middle of the breast. Generally distributed in the interior sage-brush districts of the State, most abundant in the south. "Numerous on San Nicolas Island."

The Sage Sparrow (*Amphispiza belli nevadensis* (Ridgw.) is a desert race of the preceding. Gen-

eral color lighter gray and more streaked with dusky. East of the Sierra Nevada Mountains and on the Mojave Desert.

130. Rufous-crowned Sparrow; *Aimophila ruficeps* (Cass.).

Very similar in general appearance to a chipping sparrow, but larger. Length six inches or more (size of a song sparrow). It differs from the chipping sparrow in the following points: the under parts are buffy instead of ashy, the throat is bordered with dusky streaks, the streakings of the back are broader and more rusty in color, and the line over the eye is obscure gray instead of pure white. Crown rufous, sometimes more or less mottled with dusky; back grayish brown, streaked with rusty brown; under parts pale buffy; throat paler, bordered with blackish streaks. Note a peevish *chee chee chee chee.* It inhabits the chaparral of open hillsides rather than the woods and gardens, which are frequented by the chipping sparrow. Apparently never very abundant, although generally distributed in the coast and interior valleys. A resident species in the Berkeley Hills.

131. Song Sparrow; *Melospiza fasciata* (Gmel.).

This is a familiar and favorite bird throughout temperate America. It is modified by climatic influences into a number of varieties, three of which occur in California. The song sparrow is about six inches long. It is streaked above and below. The upper parts are brown, gray and olive, varying in tone in the different races. There is a lighter grayish line down the center

of the head, and another over the eye. The breast is white, profusely streaked with dark brown, the streaks forming a line down the sides of the white throat. On the eastern slopes of the Sierra Nevada Mountains a pale race, the Mountain Song Sparrow, *Melospiza melodia montana*, occurs, while in the interior valleys of the State, west of the Sierras, Heermann's Song Sparrow, *Melospiza melodia heermanni*, is found. Its chief characteristics are its dark color and its robust bill.

Samuel's Song Sparrow is the coast form, with more slender bill, but such distinctions cannot be made in the live bird. It is only by comparison of a large series in a museum that the differences are apparent, and every shade of intergradation between them can be shown. The Rusty Song Sparrow is found along the coast north of California, but migrates south in winter to the northern parts of the State. It is dark rusty in tone.

Another race has been recently described from Santa Barbara Island, which flies to the adjacent mainland during the winter months.

132. Lincoln's Sparrow; *Melospiza lincolni* (Aud.).

This is another member of the song sparrow group, but a distinct species. Size a trifle smaller than a song sparrow. General style of coloration similar, but a buff band on the breast streaked with fine lines of black, in contrast to the white of the remaining under parts, will serve to distinguish it. Less common, and generally found as a migrant or winter visitant

except in the Sierra Nevada meadows. Must not be confounded with the Savanna sparrow (No. 117), which see.

133. Townsend's Sparrow; *Passerella iliaca unalaschcensis* (Gmel.).

The western variety of the Fox Sparrow. There is one record of the eastern variety from San Diego. Length about seven inches. Above plain dark brown or grayish brown, unstreaked; wings and tail rufous in tone; below white, heavily marked with triangular spots of brown on the breast, and streaks of the same on the sides. Common winter resident of the valleys of central California, becoming rare to the southward where it occurs as far as San Diego. Another variety of the fox sparrow occurs in the mountains of southern California, recently described as Stephen's Sparrow, *Passerella iliaca stephensi*, Anthony. The Thick-billed Sparrow (*Passerella iliaca megarhyncha* (Baird) is the variety of the fox sparrow breeding in the Sierra Nevada Mountains. It is colored olive slaty above, and the bill is much larger and thicker than in Townsend's sparrow. Otherwise they are practically alike. The Slate Colored Sparrow (*Passerella iliaca schistacea* (Baird) is another variety of the fox sparrow, occurring in the Rocky Mountains and straying occasionally into the Sierra Nevada Mountains during migrations. It is similar to the preceding, but smaller, and with more slender bill

134. Spurred Towhee; *Pipilo maculatus megalonyx* (Baird).

A western variety of the towhee bunting, chewink or ground robin of the eastern states. Length eight and a half inches. Upper parts black, with white markings on wings and tail, and spots on back, the black extending around on the throat and upper breast, in sharp contrast to the white of under parts; sides broadly marked with rufous. Found in low shrubbery or on the ground. Female with black replaced by dark slaty brownish. An abundant and generally distributed species throughout the State, wherever suitable underbrush is found. The Oregon Towhee is the race found to the northward of California, and probably occurs along our northern coast in winter. The white spots are absent on the back, and in general the white markings are more restricted. On San Clemente Island a new form has been recently recognized.

135. California Towhee; *Pipilo fuscus crissalis* (Vig.).

Length nearly nine inches; tail long. General coloration plain unstreaked brown above and below, darker on the head and lighter on the throat, the latter pale rusty brown, spotted with dusky. Under tail-coverts strongly contrasted reddish brown. A common resident of the valleys and foothills of California.

136. Green-tailed Towhee; *Oreospiza chlorura* (Aud.).

Length seven and a half inches. Crown-patch bright reddish brown; forehead blackish; back olive-green or grayish green; throat pure white,

bordered with dark stripes; under parts ashy gray. Summer resident of the Sierra Nevada Mountains, wintering in the valleys.

137. Black-headed Grosbeak; *Zamelodia melanocephala* (Swains.).

Length about eight inches; bill greatly thickened. Male with head black, a line of light orange brown frequently extending along its center; a collar of buffy or orange brown around back of neck; back black, generally more or less varied with buffy cinnamon or whitish; wings and tail black with conspicuous white patches. Rump orange brown or buffy cinnamon, this color spreading over the breast, changing to yellow on the belly, and the lining of the wings. Female with black replaced with olive-brown and under parts whitish, streaked on the sides, and with pale yellowish lining to the wings. A very abundant summer resident of nearly the entire State, and a loud and constant singer.

138. Western Blue Grosbeak; *Guiraca cærulea eurhyncha* Coues.

Length seven and a half inches. Bill thickened. General color dark ultamarine blue, blackish on back and paler below; wings and tail black; chestnut edgings on shoulders, and frequently on feathers of back and breast. Female brown, fawn color below and with faint bluish tone on wings and tail. Interior of California, breeding chiefly in the Sacramento Valley.

139. Lazuli-Bunting; *Cyanospiza amœna* (Say).

Related to the indigo bird of the eastern states. Length five and a half inches. A brightly

attired finch and a vivacious though not very loud songster. Male, entire upper parts, including head and neck, all around bright azure blue, darker on middle of back; breast rufous or tawny; belly white. There is a distinct white wing bar and sometimes a second fainter one. The female is dull in color, with but a trace of blue on the grayish brown back; breast pale buff. An abundant summer resident of the valleys and foothills, rare in the extreme south and in the mountains to seven thousand feet and above.

140. Lar Bunting; *Calamospiza melanocorys* Stejn.

This bird must not be confounded with the lark finch, which see. Length six and a half inches. Bill stout. Male in summer black, with conspicuous white patch on wings. Female and winter male brownish gray above, streaked with dusky brown; below white, streaked with dusky; shoulder patch and tips of tail-feathers white. Found chiefly in San Diego County, where it occurs in flocks.

THE TANAGER FAMILY.

This immense family of brilliant tropical American birds has but one representative commonly found in California. The tanagers are related to the finch family, but have a rather more rounded bill, better adapted to cutting than to crushing. They are fruit and insect eaters and inhabit the woodland. They are noted for the brilliancy of their colors, red and yellow predominating.

141. Western Tanager; "Louisiana" Tanager; *Piranga ludoviciana* (Wils.).

Size of a large finch. Length seven inches. Head and neck bright red, sometimes deepening to crimson. Back, wings and tail black, the wings crossed by two yellow bars; rump and entire lower parts bright yellow; the throat and breast with more or less of a scarlet tinge. Female olive-greenish or grayish above; below yellow or pale olive-gray. Two faint wing bars of lighter shade. Wooded portions of the State, breeding in the mountains, migrating through the valleys. A beautiful species, quiet and retiring in habits.

THE SWALLOW FAMILY.

Birds of swift and sustained flight, with long, sharp wings, short and flattened bill, the mouth opening very wide, and short, weak feet. They are among our most abundant and familiar birds, living upon insects caught upon the wing. The wings are not vibrated with the frequency or rapidity of the swift's, the swallows depending more upon sailing.

142. Western Purple Martin; *Progne subis hesperia* Brewst.

Largest of the swallows (length eight inches). Male glossy bluish black above and below. Female whitish and grayish below, bluish black, less clear above. A noisy and conspicuous species, social in habits. Coast Mountains and interior valleys of California.

143. Cliff Swallow; *Petrochelidon lunifrons* (Say).

This and the following species are two of the most generally distributed and common summer residents of North America. Length about five inches. General color above lustrous bluish black; a gray collar on neck and the forehead white or pale brownish; upper tail-coverts rufous; chin chestnut; a black spot on throat; breast buffy brown paling to grayish and white on the belly. Tail short and square. Everywhere common, nesting under eaves of barns.

144. Barn Swallow; *Hirundo erythrogaster* Bodd.

General color above lustrous bluish black. Forehead and throat rufous, the belly buffy brown or rufous. An irregular bluish black collar below. Outermost pair of tail-feathers greatly elongated into the typical swallow tail. Female similar but duller. A beautiful and abundant summer resident.

145. White-bellied Swallow; *Tachycineta bicolor* (Vieill.).

Length six inches. Above dark glossy bluish, below pure white. Nesting in bird boxes or holes in trees. A summer resident of the foothills and mountains, both of the Coast Range and the Sierra Nevadas. Migrating south through the valleys.

146. Violet-green Swallow; *Tachycineta thalassina* (Swains.).

Length five inches. A peculiarly beautiful species; feathers with a silky texture. Above a soft rich green, changing to purplish brown on the crown and to violet purplish on the upper tail-coverts. Colors not lustrous as in preceding species. Wings and tail blackish purple. Lower parts pure white. A common summer resident in the mountains where it nests in holes in trees.

147. Rough-winged Swallow; *Stelgidopteryx serripennis* (Aud.).

This and the next species can scarcely be distinguished in life. The distinguishing mark of this bird is the outer edge of the first flight-feather, which has a series of stiff hooks upon it. Length five inches and a half. Above plain brownish gray; below pale grayish, whitish on belly. Irregularly distributed in suitable localities, chiefly in interior valleys and to the northward. Nest in holes in sand banks.

148. Bank Swallow; *Clivicola riparia* (Linn.).

Like preceding but without rough edge of wing, and with a curious little tuft of feathers at base of toes. A distinct dark band on breast. Nest in similar situations and distribution about the same as preceding.

THE WAXWING FAMILY.

Birds with a crest extending into a point; bill rather short and compressed; adults without any suggestion of streaking. Two very different

groups are included in this family—the waxwings and the phainopepla.

149. Bohemian Waxwing; *Ampelis garrulus* Linn.

Colors very soft and blending. Size rather large (eight inches long). General color light brownish, varying from vinaceous on the fore parts of the back to clear ashy behind; a fine line of black extends across the eye and around the forehead at the base of the bill; the chin and throat are black; under parts fawn color, changing to pale soft gray; under tail-coverts rufous. The wing and tail-feathers are edged with yellow or white, and the inner wing-feathers are tipped with hard, shiny red projections that look like bits of sealing wax. A rare and erratic visitant in the mountains or interior valleys of California.

150. Cedar Waxwing; Cedarbird; *Ampelis cedrorum* (Vieill.).

Very like preceding species, but smaller (seven inches long) and under tail-coverts white. Above cinnamon, varying from vinaceous to ash on the tail-coverts. Black stripe through eye, on forehead and on chin. Below cinnamon, changing to olive yellowish and white. Wings and tail slaty, the latter edged with yellow and the former with the wax-like appendages. An irregular winter visitant in the valleys or California; breeds chiefly to the north.

151. Phainopepla; Shiny-crested Flycatcher; *Phainopepla nitens* (Swains.).

Glossy black with lustrous bluish reflections. Inner webs of flight-feathers white. Female brownish gray, darker on wings and tail, lighter below. Both sexes crested. Length seven and a half inches. Southern California; a unique and interesting species and a fine songster.

THE SHRIKE OR BUTCHER BIRD FAMILY.

Song birds of prey. Bluish gray in color, with black markings on face and wings. Bill strong and hooked; tail long. Size of a mockingbird, and similar in superficial appearance.

152. Northern Shrike; *Lanius borealis* Vieill.

Length about nine inches. Above clear bluish gray, becoming whitish on forehead and rump. A broad line of black through the eye. Below white, barred on breast and sides with fine wavy lines of grayish. Wings and tail black, both variegated with white. Young birds more brownish in tone. A northern bird, south in winter to northern California.

153. California Shrike; "Butcher Bird;" *Lanius ludovicianus gambeli* Ridgw.

The Pacific Coast variety of the eastern loggerhead shrike. This bird is similar to the preceding species, but the wavy bars on the breast and sides are obscure or wanting. A common, solitary bird of the valleys and foothills of California, where it is a resident species. On the Santa Barbara Islands a slightly different race has been recognized.

THE VIREO FAMILY.

Small, unstreaked birds, without brilliant markings, generally colored in soft tones of olive-greenish or grayish. Bill slender, but stouter than a warbler's, with which group the vireos may easily be confounded. Active in habits, and with sweet warbling songs. Insect eaters, frequenting trees and groves. Nest a suspended cup-shaped basket. All species very similar and difficult to distinguish in life. Length four or five inches.

154. Warbling Vireo; *Vireo gilvus* (Vieill.).

Head brownish gray; back grayish olive, differing but little from head; rump greenish olive; breast dull white; sides pale yellowish; a faint whitish line above the eye; no wing bars. A common, generally distributed summer resident.

155. Cassin's Vireo; *Vireo solitarius cassinii* (Xantus).

Head bluish gray; back grayish olive, contrasting with bluish of head; rump greenish olive; breast dull white; sides pale yellowish; a conspicuous white ring around eye; two white wing bars. Breeds in the mountains of California, and migrates south through the valleys.

156. Hutton's Vireo; *Vireo huttoni* Cass.

Head dull greenish gray; back greenish olive; rump brighter greenish olive; breast pale olivaceous yellowish; sides darker yellowish; a dull whitish ring around eye; two white wing bars; the wings edged with yellowish. A winter

resident of the valleys, breeding in the mountains; never very common. In general a more yellowish gray tone of coloration than in other species.

157. Least Vireo; *Vireo bellii pusillus* (Coues).

Size small. Head dull gray; back olive-gray; rump indistinct olive-greenish; breast silky white; ring around eye indistinct; wing bars narrow. Southern and interior valley regions of the State. A plain grayish little bird inhabiting willows and thickets.

158. Gray Vireo; *Vireo vicinior* Coues.

Very similar to the preceding, but wing bars indistinct or wanting. Very rare in the interior of southern California.

THE WOOD WARBLER FAMILY.

One of the most interesting and attractive groups of North American birds. Inhabitants of woodland and grove; insect eaters; rather small, active birds, constantly gleaning the leaves for food. The prevailing colors are black, yellow, and olive-green, although gray, chestnut and other colors occur in some species. There is great variation with age, sex, and season, the females being generally dull and difficult to distinguish. The bill and feet are delicately formed. The length is generally between four and five inches.

159. Caleveras Warbler; *Helminthophila ruficapilla gutturalis* (Ridgw.).

This is the western race of the Nashville warbler, being more brilliantly colored than the eastern

variety. Head and neck ashy gray, generally with a concealed crown-patch of chestnut; back olive-green ; below entirely bright yellow. Female similar, but duller. Never very common, but breeds in the Sierra Nevada Mountains.

160. Lutescent Warbler; *Helminthophila celata lutescens* Ridgw.

This is the western race of the orange-crowned warbler. Similar to the preceding, but head olive-green like back, instead of gray, and lower parts greenish yellow. An obscure crown-patch of orange brown. The female is dull olive-greenish, paler below. This is a common and generally distributed species throughout the State, but rather secluded in its haunts, living in the shrubbery of the canons.

161. Yellow Warbler, Summer Warbler; *Dendroica æstiva* (Gmel.).

Sometimes called, without reason, "wild canary." A beautiful and familiar species. Above bright yellow, the back tinged with olive-green. Below bright yellow, streaked more or less distinctly with light brown. Female similar, but duller, without the streaks below. The female lutescent warbler and female summer warbler are often very similar in color. The former species, however, has a dull grayish brown tail, unvaried, while the latter bird has the outer webs grayish brown and the inner webs yellow. An abundant summer resident everywhere, nesting in villages as well as in the woodland.

162. Myrtle Warbler; *Dendroica coronata* (Linn.).

Adult male in summer, above bluish slate, the back streaked with black; crown and rump bright yellow; throat white; breast black, with bright yellow patches on the sides. The females and winter birds are duller, the back is more or less tinged with brown, and the breast white streaked with black. In summer the white markings on wings and tail are large and prominent, but in winter they are more restricted. This common eastern bird is rare in California, where it occurs only as a winter visitant.

163. Audubon's Warbler; *Dendroica auduboni* (Towns.).

Very similar to the preceding, but throat always yellow in this species and always white in the myrtle warbler. Large white patches on the dark wings and tail. An abundant winter visitant throughout the valleys of California, breeding in the Sierra Nevada Mountains.

164. Black-throated Gray Warbler; *Dendroica nigrescens* (Towns.).

Mostly black, white and gray, with only a yellow dot in front of eye. Head black; back bluish gray, streaked with black; throat black, and sides streaked with black; under parts white; two white streaks on face. Female with black replaced by dusky markings and white slightly gray in tone. Never common, breeding in Coast Mountains and Sierras, migrating south through the valleys.

165. Townsend's Warbler; *Dendroica townsendi* (Nutt.).

Head black; back olive-green, spotted or streaked with black; breast bright yellow; belly white, the sides streaked with black. There is a yellow mask on the face surrounding a patch of black, and a black patch on the chin and throat. The female is similar, but the colors are duller and the patterns more broken, the black being frequently wanting. Two outer tail-feathers largely white on inner web, even in obscure plumage, and a conspicuous yellow streak always present above eye. Generally a rare migrant in the woodlands; nesting north of California.

166. Hermit Warbler; Western Warbler; *Dendroica occidentalis* (Towns.).

Head bright yellow; neck yellow, spotted with black. Above gray, streaked with black; below white, grayish on sides. A conspicuous triangular spot on throat. Female with sides of face yellow, the under parts largely white. Inner webs of two outer tail-feathers always white, and two white wing bars. A rare migrant through the valleys; breeding, but rare, in the high Sierras.

167. Macgillivray's Warbler; *Geothlypis tolmiei* (Towns.).

Head dark gray; back olive-green; throat and upper part of breast dark gray; lower parts bright yellow. A dusky or blackish spot between bill and eye; eyelids white. Female olive-brownish and olive-greenish above, the throat and upper breast pale buff; belly yellow.

A fairly common summer resident of both the Coast Range and Sierra Nevada Mountains of northern California, nesting also in the lower foothills; migrating through the valleys in spring and autumn.

168. Western Yellow-throat; *Geothlypis trichas occidentalis* Brewst.

The western variety of the Maryland yellow-throat. Head olive-brown; back clear olive-green; breast bright yellow; a conspicuous black mask on the face and forehead, enclosing the eye, and bordered behind by a white or grayish band, cutting across the top of the head. The winter female is without either black or white; above dull olive-green, below pale yellowish buff, browner on sides, and clearer yellow on throat and under tail-coverts. A resident species generally distributed in suitable localities. It haunts the underbrush by streams and in marshy localities.

169. Long-tailed Chat; *Icteria virens longicauda* (Lawr.).

The western variety of the yellow-breasted chat. Large for a warbler. Length seven and a half inches. Above clear olive-gray; breast bright yellow; belly pure white, sharply contrasted with breast. Two white lines on face, one above eye, another below, and eyelids white; a black spot between bill and eye. Breeding in the valleys and lower mountains of California, especially in the interior. Usually found about streams or swamps; a loud singer and famous as a ventriloquist.

170. Pileolated Warbler; *Wilsonia pusilla pileolata* (Pall.).

This is the western race of Wilson's or the black-capped warbler. Above olive-green, tending towards a pure bright yellow on the forehead; center of crown black. Below pure bright yellow. The female is like the male without the black cap. A beautiful species, inhabiting the woodland thickets, breeding sparingly in the mountains, both of the Coast Range and the Sierra Nevada, but fairly common in the valleys during the migration season.

THE WAGTAIL AND PIPIT FAMILY.

Plainly colored inhabitants of open fields and meadows. Size of a large sparrow (six or seven inches long). Migratory in flocks. May be known by the teetering motion of the body as they run about on the ground.

171. American Pipit; Titlark; *Anthus pensilvanicus* (Lath.).

Upper parts olive-brownish, indistinctly streaked with dusky; below pale buffy or brownish, the sides and breast streaked with dusky. Throat and belly unstreaked. A pale buff line above the eye. Common in winter in the valleys of California; breeding in the far north.

THE DIPPER FAMILY.

There is but one representative of this family in California, the water ouzel, a bird immortalized by John Muir in his "Mountains of California."

172. The American Dipper or Water Ouzel; *Cinclus mexicanus* Swains.

Length about eight inches. Bill long and slender; tail very short. General color slaty grayish, changing to brownish on the head. In winter plumage mottled, with white edgings to the feathers. An inhabitant of mountain streams in which it dives like a water bird.

THE WREN AND THRASHER FAMILY.

This family includes many birds which were formally classified under different headings, such as the mockingbird, the sage thrasher, and the various groups of wrens. They are all dull brown or gray birds, generally fine vocalists, with long, slender bills, frequently curving. They dwell, for the most part, in low shrubbery, where they find their insect food.

173. Sage Thrasher; Sage Thrush; Mountain Mockingbird; *Oroscoptes montanus* (Towns.).

Size a little smaller than a mockingbird (about nine inches). General appearance like a thrush. Above plain brownish gray, below whitish tinged on sides with buff and spotted with distinct dusky wedge-shaped markings. Wings and tail edged with white, the former with two white bars, the latter with two outer feathers tipped with white. A bird of the desert and sage-brush region of the southwest. North, chiefly on the eastern slope of the Sierra Nevada Mountains

174. Mockingbird; *Mimus polyglottos* (Linn.).

Length about ten inches. The young mockingbird resembles very closely the adult of the preceding species. Adult above grayish, inclining to brownish or ashy; below dirty white, unmarked; wings and tail dark brown, with white spots and edgings on former and much white on the latter (the outer pair entirely white). Common in southern California, apparently growing less abundant north of Los Angeles.

175. Californian Thrasher; *Harporhynchus redivivus* (Gamb.).

The western representative of the common eastern brown thrasher. A large, active bird (length twelve inches) with a long curving beak and a long tail. It lives in the sage-brush and shrubbery, flying with considerable rapidity and avoiding observation. It has a loud and varied song. Above dark olive-brown, below buffy; grayish brown on breast, paler on throat and rufous in tone on under tail-coverts. Southern California and interior valleys well to the northward. Apparently resident over most of its range. A paler form known as the Pasadena thrasher has been described from southern California by Joseph Grinnell.

176. Leconte's Thrasher; *Harporhynchus lecontei* (Lawr.).

Similar to the preceding but much paler. It looks like a faded specimen of the Californian thrasher. Rather rare on the Colorado Desert, where it breeds.

177. Cactus Wren; *Heleodytes brunneicapillus* (Lafr.).

An inhabitant of the desert. Size large for a wren, length seven inches. Head plain bright brown; back lighter brown, curiously streaked with black and white lines; distinct white stripe over eye; beneath white on breast changing to pale cinnamon on belly, the white heavily marked with large spots of black; wings dark, spotted with whitish; tail black, spotted and barred with white. A resident on the deserts of southern California. A race form, Bryant's Cactus Wren, has been described by Anthony from Lower California and adjacent portions of southern California.

178. Rock Wren; *Salpinctes obsoletus* (Say).

Like other wrens the tail is held upright; manners sprightly; song vivacious. Length six inches. A pallid wren chiefly found in mountainous places in the desert or sage-brush. Above pale brownish gray, finely sprinkled with dots of black and white; rump cinnamon; lower parts dull white changing to pale cinnamon behind ; throat and breast faintly streaked with dusky. A line of white or buff over eye; under tail-coverts and outer pair of tail-feathers distinctly barred; the other tail-feathers with a broad subterminal band of black and below this a band of buff. Wings but faintly mottled with lighter gray. Interior mountains, migrating south in winter to foothills and valleys. Also on Farallon Islands.

179. Canon Wren; *Catherpes mexicanus conspersus* Ridgw.

Bill very long, slender and curving. Head grayish brown; back rusty brown; tail rufous; the back dotted with fine marks of blackish and white; the tail continuously barred with narrow blackish lines. Throat and breast white; belly bright rufous. A retiring bird of the mountains and a famous singer. Winters in the foothills.

180. Vigors's Wren; *Thryomanes bewickii spilurus* (Vig.).

A typical wren. Length over five inches. Above dark brown; below grayish white. Under tail-coverts barred with dusky lines; tail barred; wings plain brown; a distinct line of white over the eye. A common winter resident of the valleys of California. A few remain to breed in the valleys of northern California, but the bulk go farther north.

181. Parkman's Wren; Western House Wren; *Troglodytes aëdon parkmanii* (Aud.).

This bird differs but very slightly from the common house wren of the eastern states. Size scarcely smaller than the preceding, from which it may be known by the absence of the white line over eye. Under parts pale buffy instead of grayish white as in the preceding species, and wings as well as tail barred with dusky lines. The general color is brown as in the preceding species, but the back and sides are more or less

waved with dusky cross markings. An abundant and familiar species, nesting about houses and rearing a numerous family.

182. Western Winter Wren; *Anorthura hiemalis pacifica* Baird.

Length only four inches. Tail very short and erect. Above dark brown, becoming rusty brown on rump and tail, both of which are barred with dusky. Wings also barred. Below buffy, faintly barred with dusky on breast, and heavily barred on belly. A buffy stripe extends over the eye. California in winter, chiefly in the northern mountains and foothills.

183. Tule Wren; *Cistothorus palustris paludicola* Baird.

This is the western variety of the long-billed marsh wren, from which it differs very slightly. Strictly confined to marshy country. Head dark brown; back brown, with a black and white patch in the middle. Rump and upper tail-coverts rufous. Wings faintly and tail more distinctly barred. Breast whitish; sides and belly pale rufous. Generally distributed in suitable places, but secretive in habits and difficult to find.

THE CREEPER FAMILY.

But one species, difficult to discover but easily recognized by its habit of clinging to the tree trunks and creeping about on the bark. Bill long, sharp, slender; tail-feathers stiff and pointed.

184. California Brown Creeper; *Certhia familiaris occidentalis* Ridgw.

Length five inches. Above streaked brownish and grayish, rusty colored on the rump. Below dull whitish, line of white over eye, and light wing markings. Breeds in the mountains; south in winter in the coniferous region and other timbered districts.

THE NUTHATCH AND TITMOUSE FAMILY.

Small, mostly dull-colored birds, most of which peck the bark for their insect food. Vivacious, frequently clinging head downward; songs and calls simple and generally unmusical. Birds of the woods and groves. The nuthatches may be readily distinguished by their general resemblance to a diminutive woodpecker with a plain bluish gray back.

185. Slender-billed Nuthatch; *Sitta carolinensis aculeata* (Cass.).

The western race of the common eastern white-breasted nuthatch. Length about five and a half inches. Top of head and neck black; dark grayish in the female. Breast white. Tail conspicuously marked with white. A resident of the mountains and foothills in the forested parts of the State.

186. Red-breasted Nuthatch; *Sitta canadensis* Linn.

Length about four and a half inches. Top of head black in male and gray in female; a line of black through the eye, extending back on neck,

and a white line above it. Below rufous or pale reddish brown. Breeds in the high mountains, south in winter through the wooded valley districts.

187. Pygmy Nuthatch; *Sitta pygmæa* Vig.

Length under four inches. Head brownish or bluish gray; breast pale buff, sometimes reddish brown; base of middle tail-feathers white. Rather rare in the mountains of northern California, south in winter in valleys to the region about Monterey. More abundant on the eastern slopes of the Sierra Nevada Mountains.

188. Plain Titmouse; *Parus inornatus* Gamb.

Birds of the titmouse group do not live upon the bark of trees as do the nuthatches, although their nests are made in holes in rotten stumps, and many of them are in the habit of pecking at the bark for food. The plain titmouse is about five inches long. It is crested; the upper parts are dark, dull gray; the lower parts dull whitish gray. A common resident of the valleys and foothills of California, generally found among the oaks.

189. Mountain Chickadee; *Parus gambeli* Ridgw.

Uncrested. Length about five and a half inches. The western representative of the common chickadee of the eastern states. Head black; throat black; a distinct line over eye; sides of head white; above ashy gray; below grayish white, the sides with a brownish tinge; wings and tail dark, scarcely marked with whitish. A resident of the mountains in coniferous regions.

190. California Chickadee; *Parus rufescens neglectus* Ridgw.

This is but a southern race of the chestnut-backed chickadee. Top of head dark smoky brown; sides of face white; throat sooty blackish; above dark rufous; breast whitish; sides grayish, sometimes slightly tinged with rufous. Common in the redwoods and pines of the Coast Mountains, from Santa Cruz northward. It is social in habits and very tame.

191. Wren-Tit; *Chamæa fasciata* Gamb.

Size small, length six inches, but tail very long in proportion to body. Above dark brown, unmarked; grayer on head; tail faintly barred with dusky; below cinnamon brown, paler on belly; faint dusky streaks on throat and breast. A common resident of the valleys and foothills of the coast. In the interior valleys and foothills it becomes paler and is known as the *Pallid Wren-Tit.*

192. Californian Bush-Tit; *Psaltriparus minimus californicus* Ridgw.

Bill very small; tail long. Length four inches. Top of head light brownish; back brownish gray; breast pale grayish. Generally seen in flocks and as a rule haunting the oaks. Common resident in the valleys and foothills of California.

193. Verdin; Gold-Tit; *Auriparus flaviceps* (Sund.).

Length four inches. Head and neck brilliant yellow. Back ashy; lower parts grayish white;

patch of chestnut red on the wing-coverts. Colorado Desert.

THE KINGLET AND GNATCATCHER FAMILY.

Small, slender, insect eating birds, with delicate bills, generally found in flocks among the trees; colored olive-green or bluish gray and usually with a special head marking. They are never streaked, even in the young plumage. They are confiding in habits and may be easily observed. The two species of kinglet are olive-green above, brighter on the rump and on the edges of wing and tail-feathers; the wings are barred with whitish; below dull whitish with a faint olive tinge on sides. Young without head ornaments. Length about four inches.

194. Western Golden-crowned Kinglet; *Regulus satrapa olivaceus* Baird.

Crown of male black bordered, enclosing a yellow space within which is an orange flame-colored center. Line of white over eye. Female like male but lacking the orange center to the crown. Breeds in the high mountains of northern California, and south in winter irregularly in the valleys. Less common than the following.

195. Ruby-crowned Kinglet; *Regulus calendula* (Linn.).

Crown of male brilliant scarlet, without black border. Female without special marking. It is therefore very difficult for the inexpert to tell the female from some of the dull colored

warblers and vireos. There is a fine ring of white around the eye, which will help to distinguish it, although Hutton's vireo also has this mark. Indeed the female ruby-crown is almost a perfect counterpart of Hutton's vireo, save for its smaller size and more slender bill. Breeds in the high northern mountains, south in winter abundantly, frequenting the trees along our village streets as well as in unsettled regions.

196. Western Gnatcatcher; *Polioptila cærulea obscura* Ridgw.

The gnatcatchers are about the size of the kinglets, or a little larger (length four and a half inches), but are colored bluish gray, black and white, with no olive-greenish or yellowish shade. The only bird with which they might be confounded is the Californian bush-tit.

The western gnatcatcher is but a race form of the blue-gray gnatcatcher. It is bluish gray on the back, and white below, ashy on the sides. The forehead and a line over the eye are black. Below this black line is a faint white edge. Tail black, the outer feathers white, the next white edged and tipped. Female duller and without black on head. Southern and central California in the valleys.

197. Black-tailed Gnatcatcher; *Polioptila californica* Brewst.

Similar to preceding, but top of head wholly black; a white line around eye. Tail black, the outer feathers with outer web white, and

the two outer feathers white tipped. Female similar but duller and without the black cap. A resident of southern California, apparently less common north of Los Angeles.

THE THRUSH FAMILY.

The highest of North American song birds. Never streaked, but generally speckled, principally on the breast, at least in the young plumage. Colors often brown, sometimes slaty, reddish brown and blue. The characteristic mark of the thrushes is the "booted tarsus." The tarsus is the foot, commonly but erroneously called the leg of a bird. In most birds this is covered, at least on the front, with scales. In the thrushes these scales are run together into a single piece, known as the "boot." The thrushes are insect eaters and fine singers. The foot is long and slender, and the bill moderately sharp and slender.

198. Townsend's Solitaire; *Myadestes townsendii* (Aud.).

The least thrush-like of the group. Length eight inches. It is colored brownish gray above and gray below, while the young is spotted above and below with buff and dusky. There is a faint line of white around the eye, and a concealed buffy band on the wing. Outer tail-feather edged and broadly tipped with white. Breeds in the Sierra Nevada Mountains, and south through the valleys in winter, but generally a rare and retiring bird.

199. California Russet-backed Thrush; *Hylocichla ustulata œdica* (Oberh.).

Length seven inches. Above olive-brown; breast pale buff, marked with distinct triangular spots of brown. A whitish ring encircles the eye. Belly white; sides olive-gray. An abundant summer resident of the valleys of California. Call-note a single short whistle with a rising inflection.

200. Dwarf Hermit Thrush; *Hylocichla aonalaschkæ* Gmel.

A slightly smaller species than the preceding (length averaging six and a half inches). Olive or grayish brown above, changing to rufous on the upper tail-coverts and tail. Breast pale buffy, marked with large triangular spots, and sides pale gray. A buffy ring encircles the eye. Common winter resident in the valleys of California, and in the mountains of southern California. Its call-note is a short, emphatic, low, *chuck!*

Audubon's Hermit Thrush (*Hylocichla aonalaschkæ auduboni*) is the variety found in the Sierra Nevada Mountains during the summer months. It is a slightly larger and grayer bird. Sierra Nevada Mountains, San Bernardino, Calaveras, Placer Counties (Coast Range, Monterey Co.), Belding.

201. Western Robin; *Merula migratoria propinqua* Ridgw.

Scarcely distinguishable from the eastern robin of which it is a geographical race. Length ten and a half inches. Above olive-slaty, lighter

on back, the head and tail blackish; eyelids white. Below reddish brown; throat white, streaked with black; belly and under tail-coverts white. Female and winter male with colors more dingy, the back more brownish in tone and the breast paler. Young spotted above and below. A summer resident of the mountains and redwood region, wintering in the valleys.

202. Varied Thrush; Varied Robin; *Hesperocichla nævia* (Gmel.).

Length nine and a half inches. Upper parts dark slaty; head and tail blackish brown. Under parts orange brown, changing to white on the belly. A black crescent on breast; a broad black line bordering throat below eye and an orange brown line above it, back of eye. Three orange brown bars cross the wings. Female with back tinged with brownish and the breast crescent pale dusky. A winter visitant migrating along the mountains into the valleys where it is shy and seldom seen.

203. Western Bluebird; *Sialia mexicana occidentalis* (Towns.).

The western representative of the bluebird, but a distinct species. Length seven inches. Male, above brilliant glossy blue, broken on middle of back by a chestnut patch. Throat like back; breast chestnut, extending down on sides, leaving the belly white, tinged with bluish or grayish. Female much duller, the blue of the back changed to grayish, except on rump and tail, and the chestnut of breast to buffy. The young have

the back spotted with whitish and the breast mottled with white and brownish. Resident in the foothills and lower mountains of California, wintering in the valleys.

204. Mountain Bluebird; *Sialia arctica* (Swains.).

Size of the preceding or a trifle larger. Male, above and below a beautiful azure, much lighter in tone than the preceding bird; paler on under parts, changing to white on the belly. Female, above brownish gray, changing to bluish on wing-quills, rump and tail; below paler, changing to white on belly; tips of wings blackish brown. Breeds in the Sierra Nevada Mountains, migrating in winter to the valleys, chiefly in the interior.

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